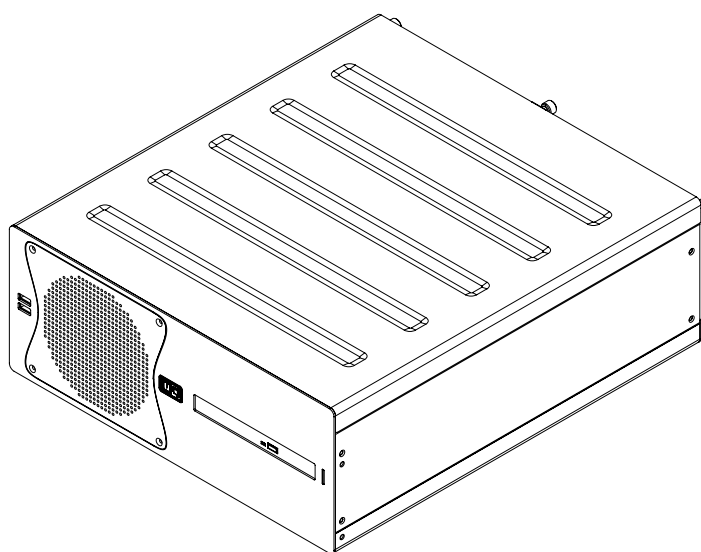


USER MANUAL



HT C01 - Compact Computer

HT C01 xxy-zzzz

xx = standard or custom

y = operating system

zzzz = configuration dependent

User Manual HT C01	
Updated: 05 Nov 2014	Doc Id: INB10042-2 (Rev 19)
Created: 363	
Approved: 6987	

Please visit www.hatteland-display.com for the latest electronic version of this manual.

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Aamsosen, N-5578 Nedre Vats, Norway.

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www.hatteland-display.com/pdf/misc/doc100703-1_permission_to_create_user_manuals.pdf

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All other product names or trademarks are properties of their respective owners !

WARNING: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Last revised 9 Nov 2012

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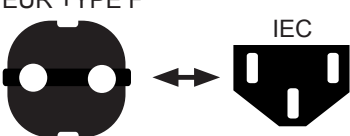

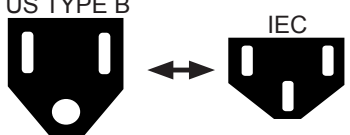

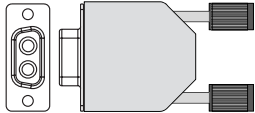


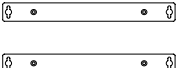




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Contents of package

This product is shipped with:

Item	Description	Illustration
 FS-CABLE EU	1 pcs of power cable European Type F "Schuko" to IEC. Length 1.8m Note: Only applicable for factory delivered units with AC Power Input	
 80099	1 pcs of power cable US Type B plug to IEC. Length 1.8m Note: Only applicable for factory delivered units with AC Power Input	
 FCE17-E2W2SS-2N0 & L17DPPK09JSU (cover)	1 pcs of DC Power Input housing with internal cable screw terminal. Note: Only applicable for factory delivered units with DC Power Input	
 MEDIA STD01	1 pcs of Documentation and Driver DVD.	 <div>Menu and Driver browser for Microsoft® Windows®</div>
 HT 00226 OPT-A1	Mounting brackets incl. screws (for console mounting)	
 DVI-4	1 pcs of DVI > RGB/VGA adapter DVI 12+5P Male to DSUB 15P Female	
	Test Reports papers: 1 pcs of Product Declaration 1 pcs of Computer Checklist 1 pcs of BurnInTest Certificate	
	For computers that include 3rd party hardware; the package / accessories box may also include additional CD / HW / Information from 3rd party supplier(s).	

Package may also include: (based on accessories/options ordered)

Item	Description	Illustration
 HT 00215 OPT-A1	Recovery Kit (USB Flash) For reverting back to factory/customized installations. Note: Only applicable for factory delivered units with HDD/SSD hardware.	 <div>Recovery Image (located on hidden partition on HDD/SSD). Only available for WinXP installations.</div>
	For computers that include 3rd party hardware; the package / accessories box may also include additional CD / HW / Information from 3rd party supplier(s).	

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General

About this manual

The manual contains electrical, mechanical and input/output signal specifications. All specifications in this manual, due to manufacturing, new revisions and approvals, are subject to change without notice. However, the last update and revision of this manual are shown both on the frontpage and also in the "Revision History" chapter at the end of the manual.

Furthermore, for third party datasheet and user manuals, please see dedicated Documentation and Driver DVD delivered with the product or contact our sales/technical/helpdesk personnel for support.

About Hatteland Display

Hatteland Display is the leading technology provider of specialized display and computer products, delivering high quality, unique and customized solutions to the international maritime, naval and industrial markets.

The company represents innovation and quality to the system integrators world wide. Effective quality assurance and investment in sophisticated in-house manufacturing methods and facilities enable us to deliver Type Approved and Mil tested products. Our customer oriented approach, technical knowledge and dedication to R&D, makes us a trusted and preferred supplier of approved solutions, which are backed up by a strong service network.

www.hatteland-display.com

You will find our website full of useful information to help you make an informed choice as to the right product for your needs. You will find detailed product descriptions and specifications for the entire range on Displays, Computers and Panel Computers, Military solutions as well as the range of supporting accessories. The site carries a wealth of information regarding our product testing and approvals in addition to company contact information for our various offices around the world, the global service centers and the technical help desk, all ensuring the best possible support wherever you, or your vessel, may be in the world.

Contact Information

Head office, Vats / Norway: Hatteland Display AS Åmsosen N-5578 Nedre Vats, Norway Tel: +47 4814 2200 Fax: +47 5276 5444 mail@hatteland-display.com	Sales office, Frankfurt / Germany: Hatteland Display GmbH Werner Heisenberg Strasse 12, D-63263 Neu-Isenburg, Germany Tel: +49 6102 370 954 Fax: +49 6102 370 968
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For an up-2-date list, please visit www.hatteland-display.com/locations

Computers introduction

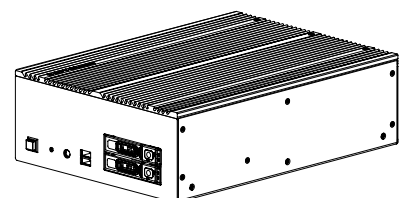
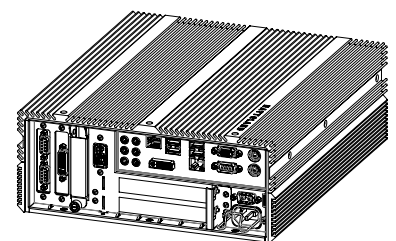
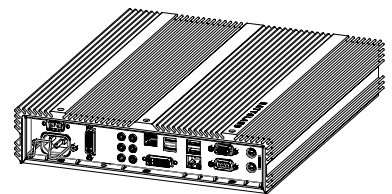
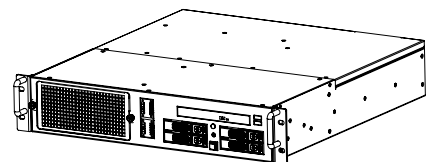
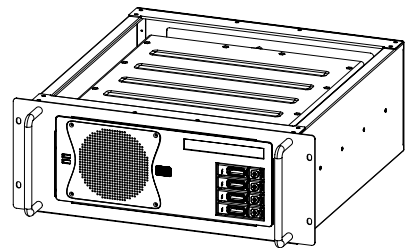
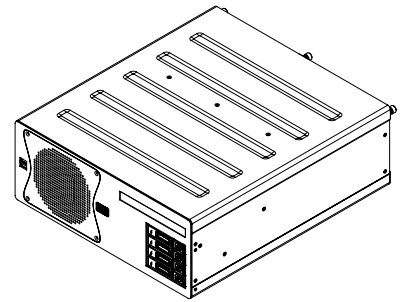
Hatteland Display's range of type-approved computers is designed to perform in harsh environments while providing the performance and flexibility you expect. We offer rack mount and black box/standalone computer solutions for every need. Our computers are used by system integrators, boat builders and end-users and can be found on all vessel types, all over the world.

If you are looking for a high quality computer for navigation, monitoring or entertainment solutions, Hatteland Display can fulfil your high expectations at a reasonable cost.

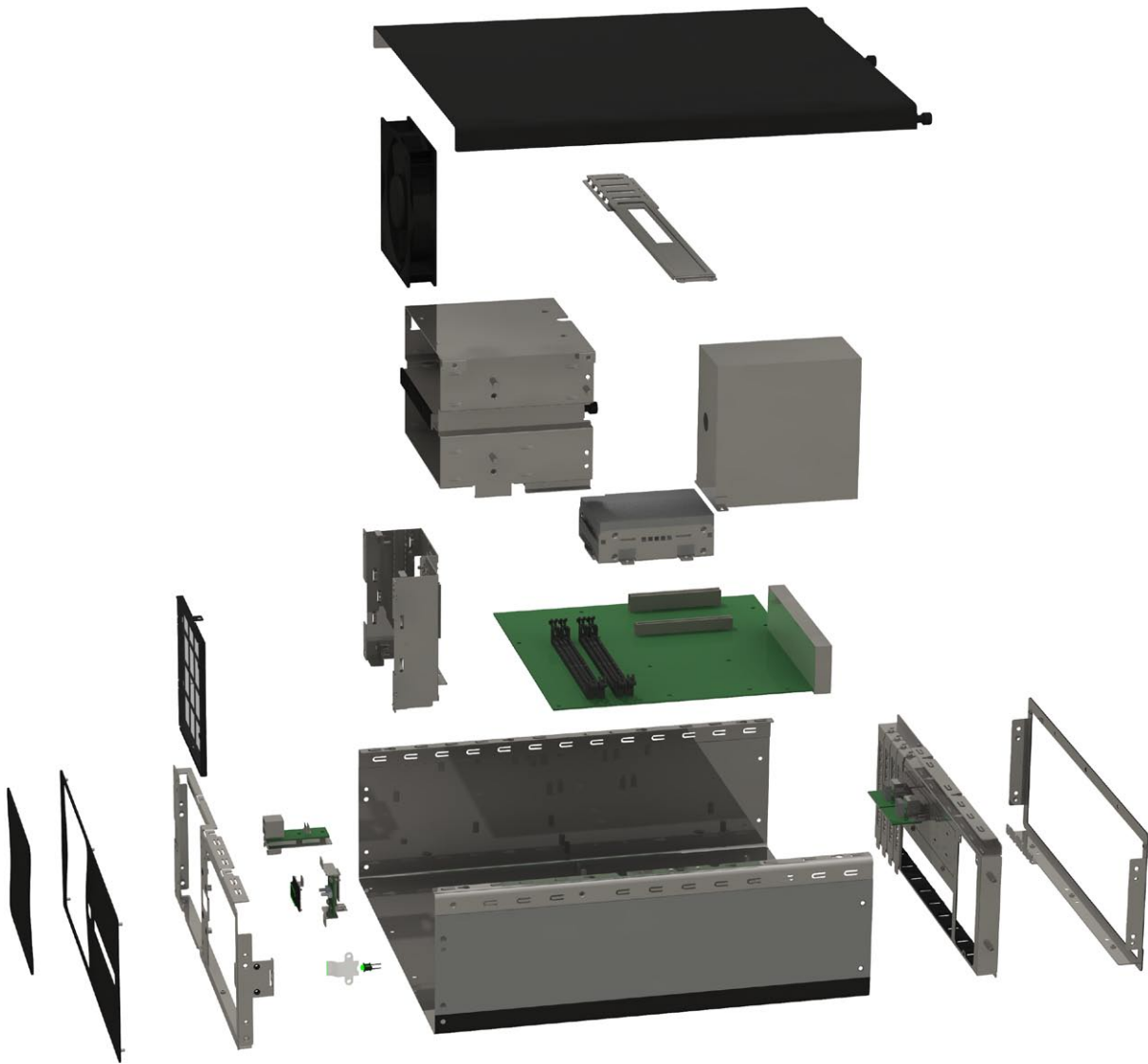
Our computer range covers all eventualities and requirements. We offer a wide range of processor choices, HDD and power options, and solid state technology, neatly engineered within industry standard form factors such as 19" rack mount, 2U and 4U solutions.

We continually develop our computers portfolio to make the best use of emerging computer technology so you can be sure that your Hatteland Display computer offers the power needed to run modern applications, with the flexibility to be installed wherever you want, for any marine use.

Designed to perform in harsh environments...



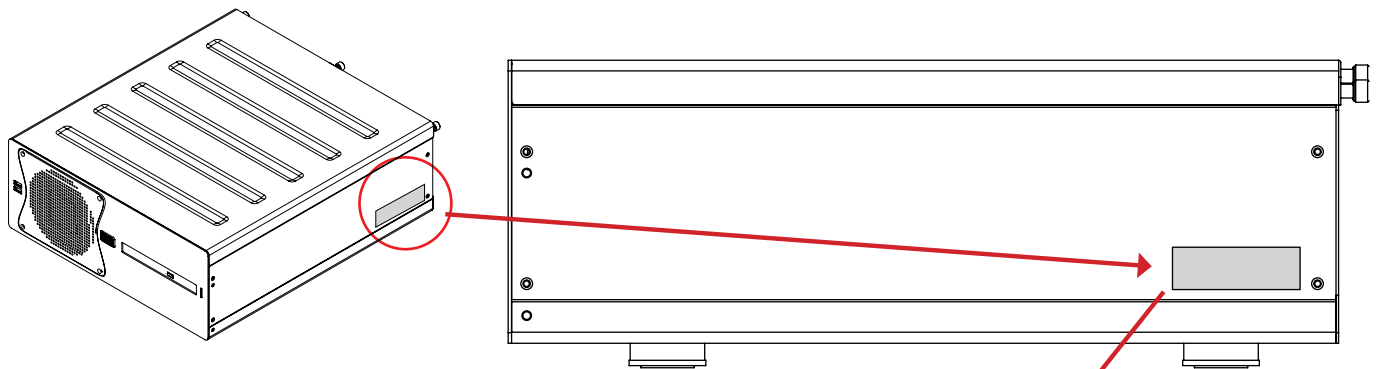
Exploded View



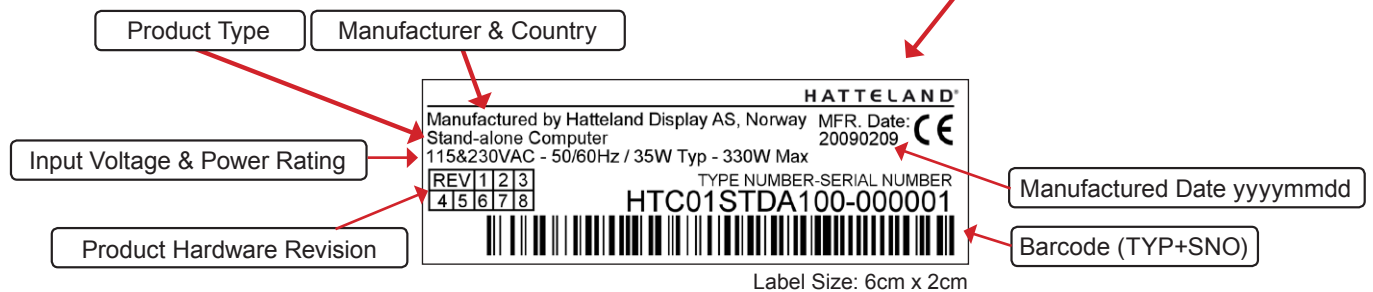
General illustration

Product Labels (Examples)

Serial Number Label Placement (external)



Serial Number Label Layout



Serial Number Label Nomenclature

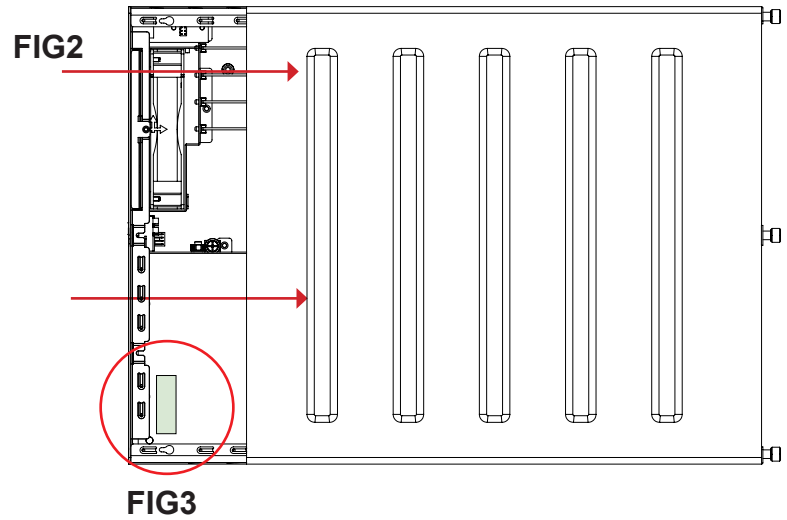
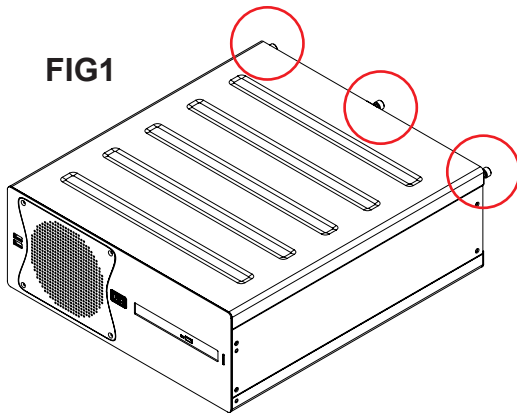
AA XXX AAA-AXXX-XXXXXX	NOMENCLATURE - A=Letters, X=Numbers
HT C01 STD-A111-000005	Example
α-----	Serial Number. Due to revisions, numbers may be 1 to 7 digits
ααα-----	Configuration ID (for components like memory, storage etc.)
α-----	Power Input ID (A=90-264VAC, D=24VDC)
α-----	Installed Operating System ID / No Installed OS ID
αα-----	Abbreviation for Standard (STD) or reserved customer ID
α-----	Chassis Revision ID
α-----	Electronics / Mainboard / Technology Revision ID
α-----	Chassis Type ID
α-----	Maritime Model (HT) or Naval Rugged Model (HM) ID
α-----	Manufacturer ID

Product Labels (Examples)

Operating System Serial Number Label Placement (internal)

Please review the “General Installation Recommendations” chapter in this manual before proceeding.

Unscrew the 3 chassis screws (FIG 1), and slide the cover slightly (5mm/0.20”) (FIG 2) and lift the cover to reveal the label (FIG 3).



Installation

General Installation Recommendations

Installation and mounting of computers

1. Units may be intended for various methods of installation or mounting (rack mounting, panel mounting, bracket mounting, ceiling/wall mounting); for details, please see the relevant mechanical drawings.
2. Adequate ventilation is a necessary prerequisite for the life of the unit. The air inlet and outlet openings must definitely be kept clear; coverings which restrict ventilation are not permissible. The product might be without any ventilation apertures which means pt.2 does not apply.
3. Exposure to direct sunlight can cause a considerable increase in the temperature of the unit, and might under certain circumstances lead to overtemperature. This point should already be taken into consideration when the bridge equipment is being planned (sun shades, distance from the windows, ventilation, etc.)
4. Space necessary for ventilation, for cable inlets, for the operating procedures and for maintenance, must be provided.
5. To further improve the cooling of the unit we recommend installing Cooling Fans underneath blowing upwards into the unit air inlet. This may be required in high temperature applications and also when there is reason to expect temperature problems due to non-optimal way of mounting.
6. The product should be properly grounded, a shorter and thicker cable gives better grounding. A 6mm² is recommended, but a 4mm² or even 2.5mm² can be used for this purpose.
7. Exposure to heavy vibration and acoustic noise might under certain circumstances affect functionality and expected lifetime. This must be considered during system assembly and installation. Mounting position must carefully be selected to avoid any exposure of amplified vibration.

General mounting instructions

1. The useful life of the components of all Electronics Units generally decreases with increasing ambient temperature; it is therefore advisable to install such units in air-conditioned rooms. If there are no such facilities, these rooms must at least be dry, adequately ventilated and kept at a suitable temperature in order to prevent the formation of condensation inside the unit.
2. With most Electronic Units, cooling takes place via the surface of the casing. The cooling must not be impaired by partial covering of the unit or by installation of the unit in a confined cabinet.
3. In the area of the wheel house, the distance of each electronics unit from the magnetic standard compass or the magnetic steering compass must not be less than the permitted magnetic protection distance. This distance is measured from the centre of the magnetic system of the compass to the nearest point on the corresponding unit concerned. The exact distance is often mentioned in the specific product specifications.
4. Transportation damage, even if apparently insignificant at first glance, must immediately be examined and be reported to the freight carrier. The moment of setting-to-work of the equipment is too late, not only for reporting the damage but also for the supply of replacements.
5. The classification is only valid for approved mounting brackets provided by Hatteland Display. The unit shall be mounted stand-alone without any devices or loose parts placed at or nearby the unit. Any other type of mounting might require test and re-classification.

General Installation Recommendations

Cables

Use only high quality shielded signal cables. For RGB/DVI cables use only cables with separate coax for Red, Green and Blue.

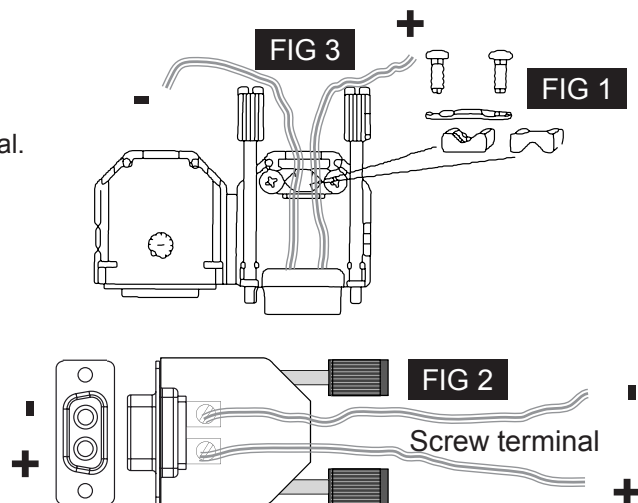
Configuring DC power input housing connector

Note: Only applicable for certain models!

For installations that require DC power input, use the provided 2-pin DC Power Input housing with internal cable screw terminal.

- 1: Open the housing
- 2: Unmount the fasteners. (FIG 1)
- 3: Mount power cables to screw terminal (FIG 2). Note polarity!
- 4: Secure the cable tightly with fasteners (FIG 3, FIG 1)
- 5: Close the housing

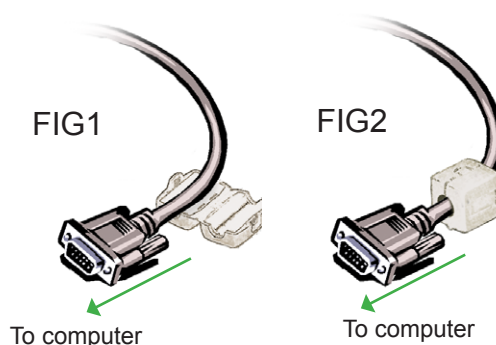
Note: Please check polarity before connecting any cables to the screw terminal.



Ferrites

On selected products, the ferrites prevent high frequency electrical noise (radio frequency interference) from exiting or entering the equipment. To verify if your product require this, please see the “Physical Overview” chapter in this manual. The ferrites are part of the contents of the package also specified in the “Contents Of Package” chapter early in this manual. **The ferrites must be mounted on specific cables to fully comply with the Type Approvals!**

The ferrites should be mounted (clipped in place on the cable as shown in illustration) as close as possible to the cable connector on the rear side of the computer product. Open up the ferrite, place the cable inside as shown in FIG1, and then gently close it until a click can be heard (FIG2).



General Installation Recommendations



CAUTION

This unit contains electrostatic sensitive devices.
Observe precautions for handling.

Computer Upgrade Precaution Note

Users who needs to open the computer to change PCI cards, install more memory, or set internal jumpers can do so without voiding the warranty. Before opening a unit's housing to remove or touch a board, proper ESD measurements must be taken!

1. Operator should ground himself by using a wrist band.
2. The wrist band should be connected to ground via a ground cord.
3. A one megaohm resistor, installed in the wrist connection end of the ground cord, is a safety requirement.
4. Alternatively an Static-dissipative ESD work mat could be positioned at the workplace.
The 3M™ 8501 Portable Field Service Kit is a good choice for this purpose.

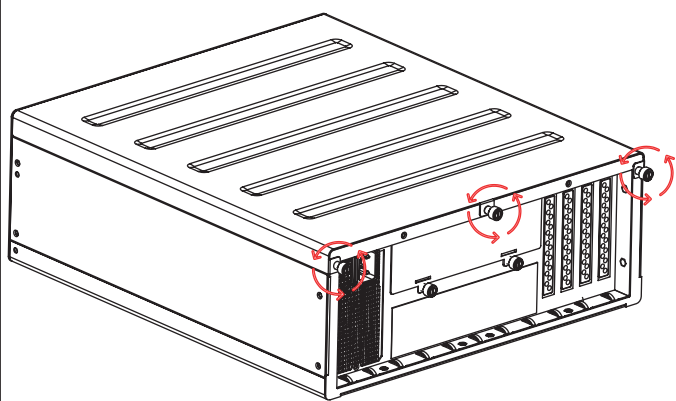
All assisting persons who might come into contact with the endangered boards must also use the ESD equipment.

General Installation Recommendations

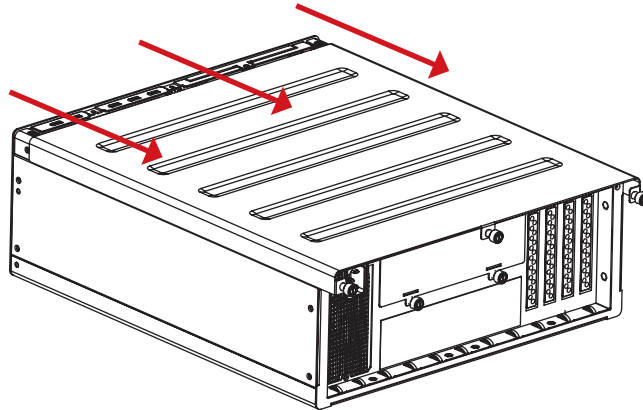
Cabinet cover removal

Note: Areas of interest are marked in this section with arrows in **RED** color. Please disconnect ALL cables from the computer unit before proceeding!

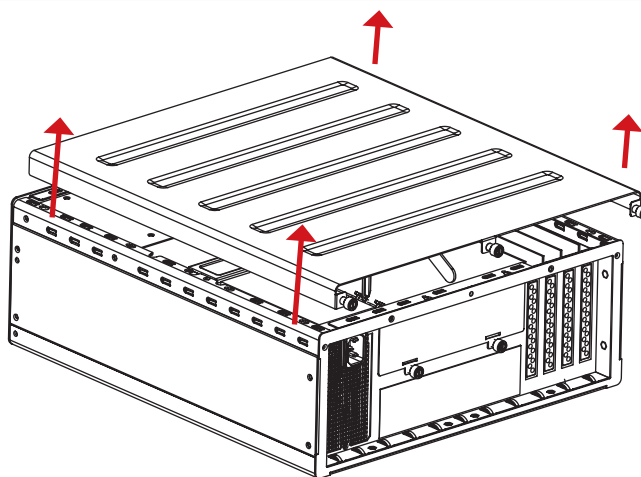
1: Unscrew 3 screws in rear of cabinet. Turn anti-clockwise using your fingers.



2: Push cover gently down while pushing forward approx 5mm [0.20"] away from the front and then lift the cover.



3: Lift the cover up with both hands. Repeat the procedure backwards to finalize operation.

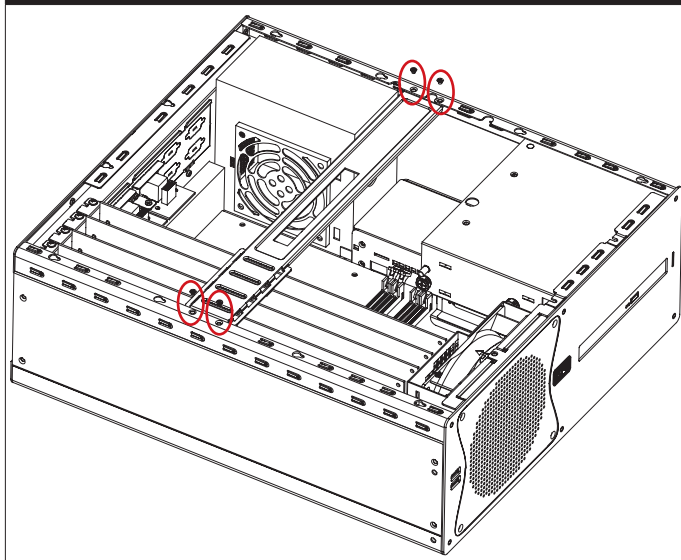


General Installation Recommendations

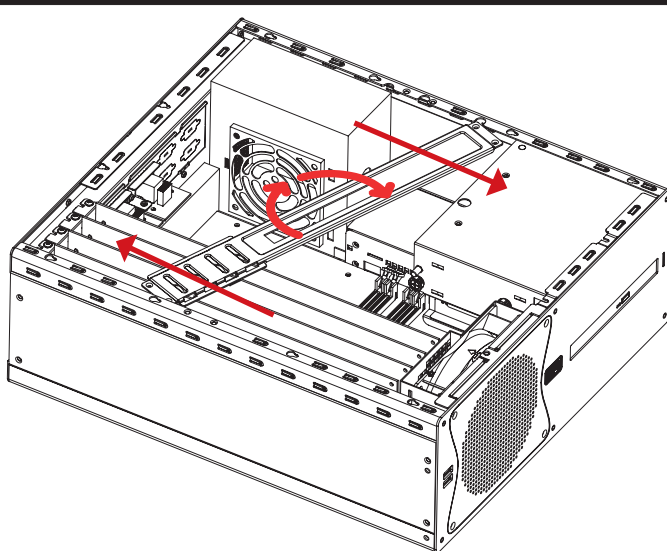
PCI Card removal / replacement - Introduction

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit before proceeding!

1: Unscrew 4 screws on each side of the bracket. Turn anti-clockwise using a Pozidriv #2 screwdriver.



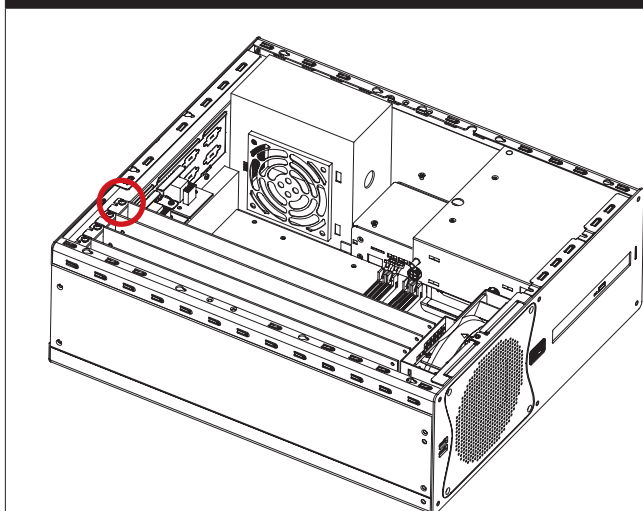
2: Push each side of the bracket, one forward and one backwards in a 45 degree rotation clockwise to slide it out of the tracks. Then lift up the the bracket to remove it.



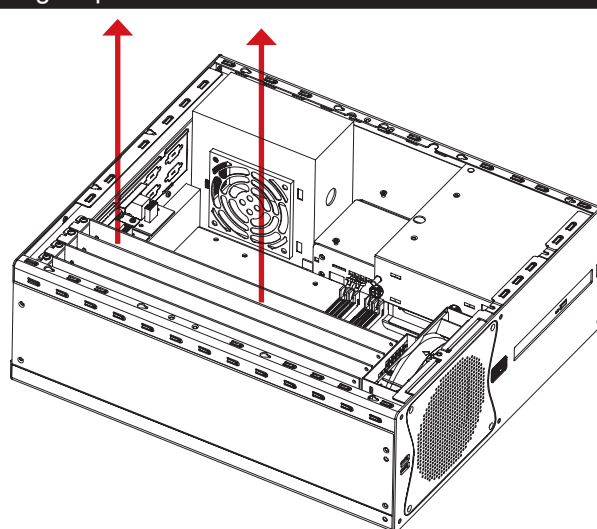
PCI Card removal / replacement - Full Length & Full Height

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit before proceeding!

1: Unscrew 1 screw to loosen the PCI card bracket from the cabinet. Turn anti-clockwise using a Pozidriv #2 screwdriver.



2: Remove or insert the desired PCI card into the slot. Make sure you do not force the card down, it should be mounted with a firm grip with two hands and performed in a straight up or downwards motion.



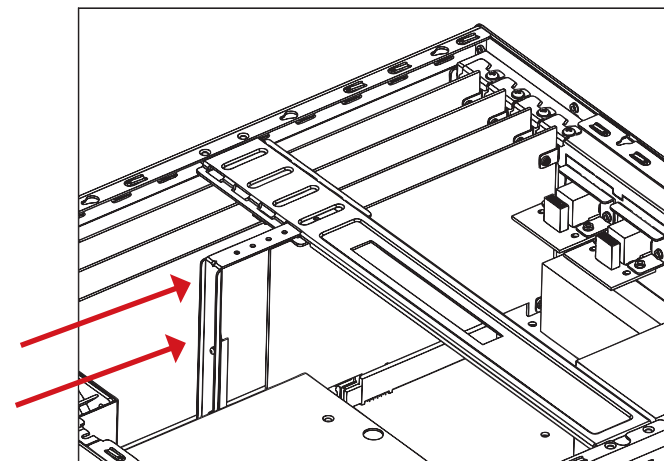
Repeat the procedure backwards to finalize operation.

General Installation Recommendations

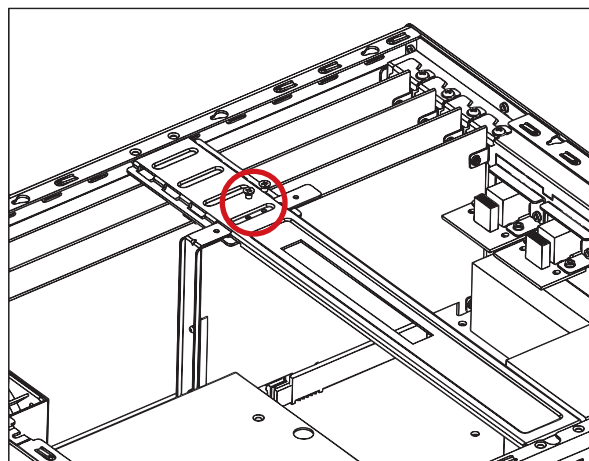
PCI Card removal / replacement - Half Length & Full Height

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit before proceeding!

1: Place the PCI Half Length bracket as shown and push/slide it in so it reaches the end of the PCI card.



2: Mount 2 screws on top to fasten the PCI Half Length bracket. Turn clockwise using a Pozidriv #2 screwdriver.

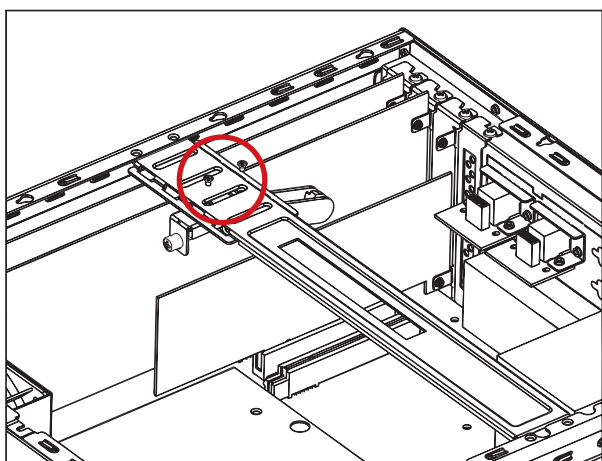


Repeat the procedure backwards to finalize operation.

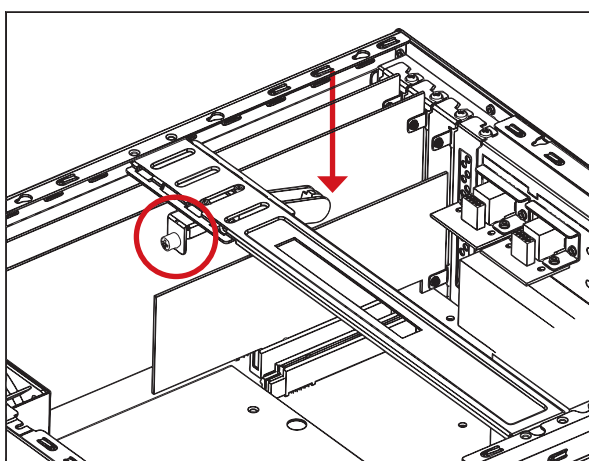
PCI Card removal / replacement - Half Length & Half Height

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit before proceeding!

1: Place the PCI Half Length/Half Height bracket as shown and fasten it with 2 screws on the top. Turn clockwise using a Pozidriv #2 screwdriver.



2: Notice the screw at the end of the bracket. By turning this clockwise using your fingers the support piece will be pulled downwards and towards the edge of the PCI card, thus making it secured. Use a fair amount of force.



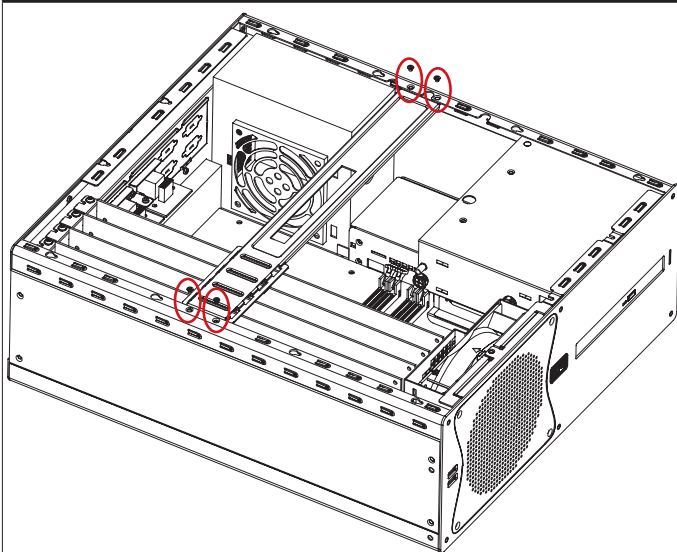
General Installation Recommendations

Hard Drive (HDD) removal / replacement

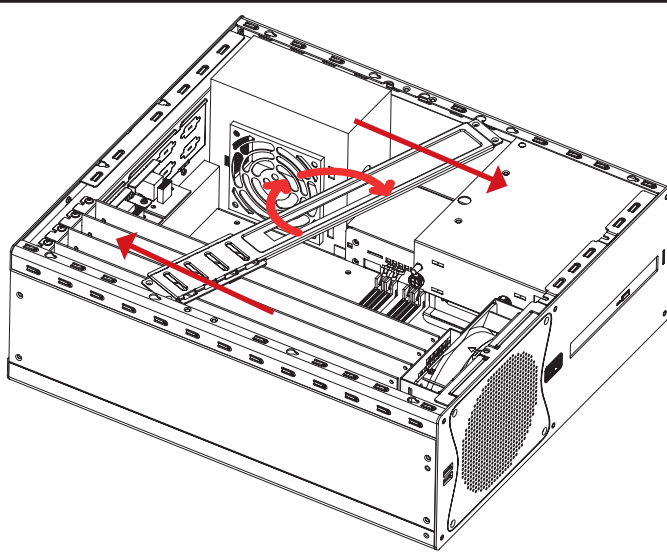
Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit and HDD's before proceeding!

Note: Illustration shows AC model. For DC models, the power supply must also be removed in order to gain easy access to the HDD. As of June 2011, DC illustration is pending for this page. Meanwhile, please visit <http://www.hatteland-display.com/support> for assistance if needed.

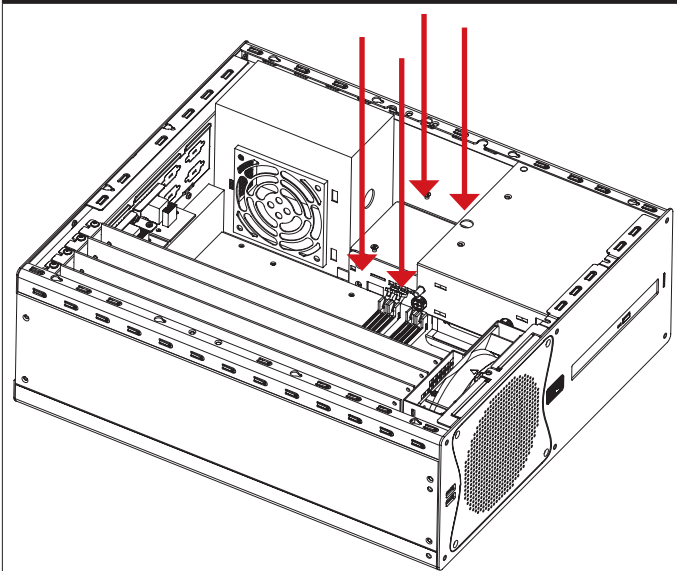
1: Unscrew 4 screws on each side of the PCI bracket. Turn anti-clockwise using a Pozidriv #2 screwdriver.



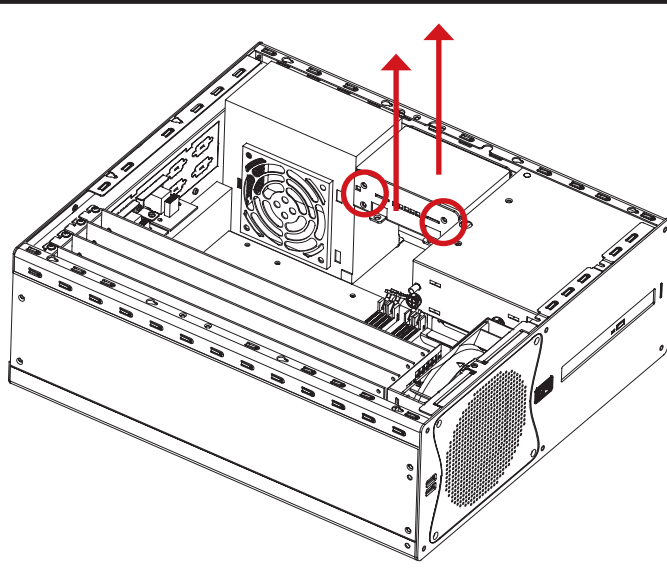
2: Push each side of the bracket, one forward and one backwards in a 45 degree rotation clockwise to slide it out of the tracks. Then lift up the the bracket to remove it.



3: Unscrew 4 screws on each side holding the HDD bracket at the bottom of the cabinet.



4: Lift the HDD bracket up and dismount the HDD from the bracket itself by unscrewing its 4 screws (2 on each side). Turn anti-clockwise using a Pozidriv #2 screwdriver.



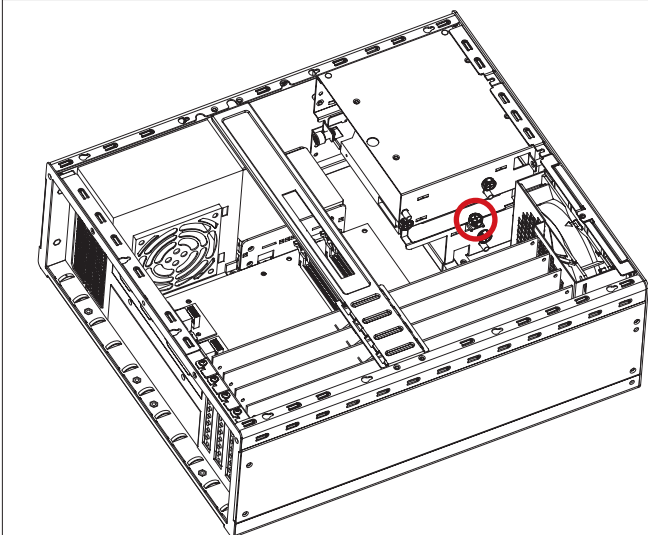
Repeat the procedure backwards to finalize operation.

General Installation Recommendations

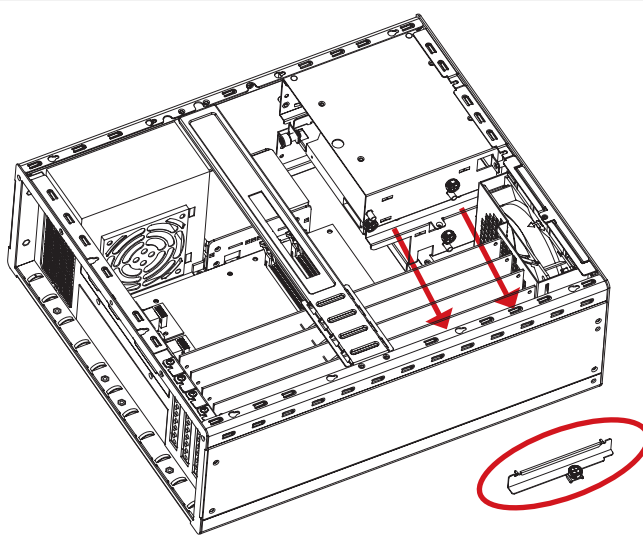
DVD/CD Drive removal / replacement

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit and DVD/CD drive before proceeding!

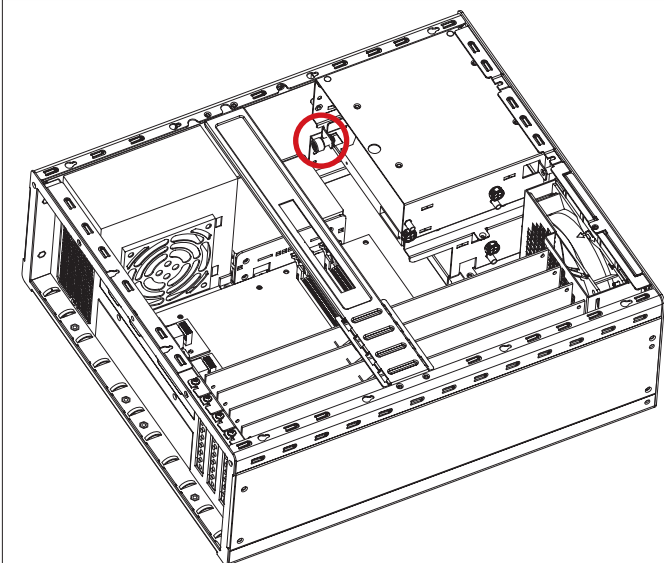
1: Unscrew 1 screw on the DVD/CD bracket. Turn anti-clockwise using your fingers.



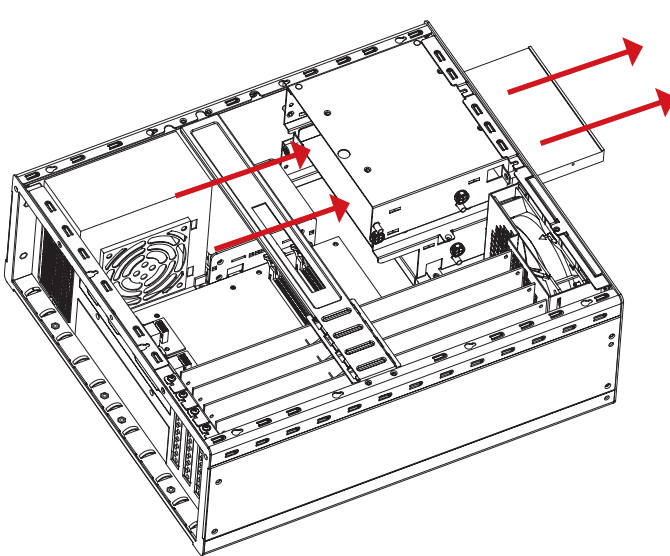
2: Gently pull out the DVD/CD bracket away. Remember it's orientation and placement.



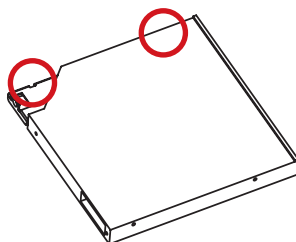
3: Unscrew 1 screw on the back of the DVD/CD drive. Turn anti-clockwise using fingers.



4: Gently push with your fingers on the back of the DVD/CD drive, while using your other hand to pull it out.



5: Unscrew 2 screws on the right side of the DVD/CD drive. Turn anti-clockwise using a Pozidriv #2 screwdriver.



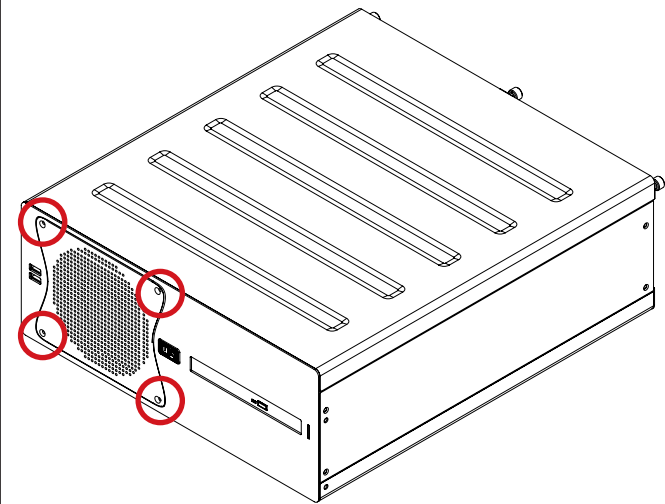
Repeat the procedure backwards to finalize operation.

General Installation Recommendations

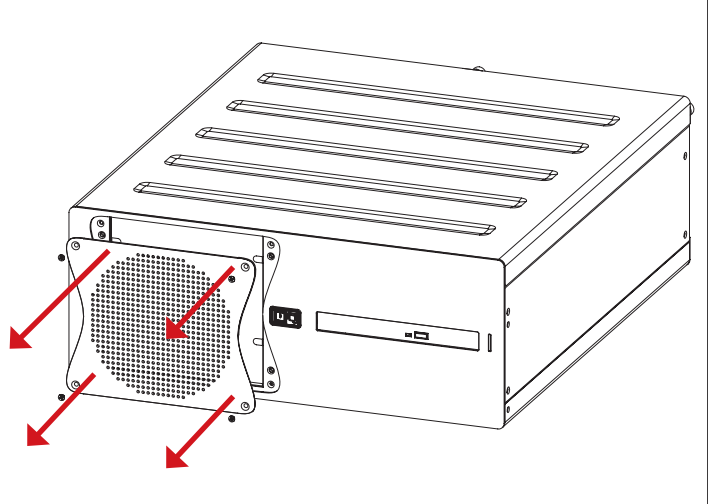
Air Filter removal / replacement - Alternative #1

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit and cards before proceeding!

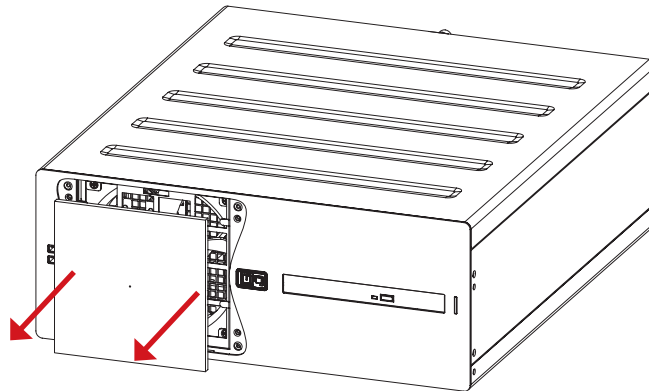
1: Unscrew 4 screws from the fan/filter cover in front of the unit. Turn anti-clockwise using a Pozidriv #2 screwdriver.



2: Gently pull out the fan/filter cover.



3: Gently pull out the Air Filter. Either clean or replace it.



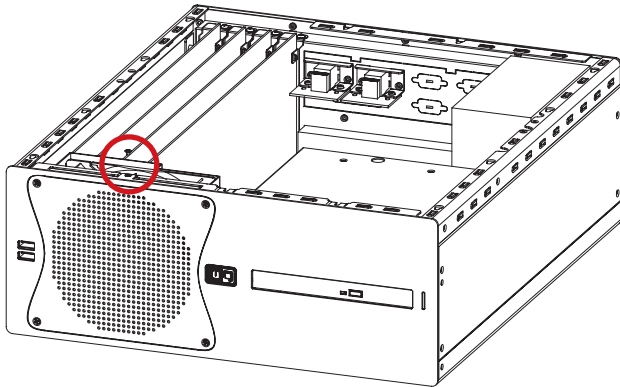
Repeat the procedure backwards to finalize operation.

General Installation Recommendations

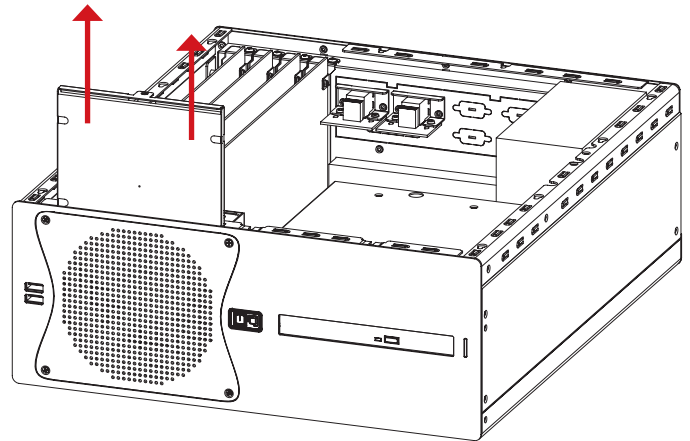
Air Filter removal / replacement - Alternative #2

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit and cards before proceeding!

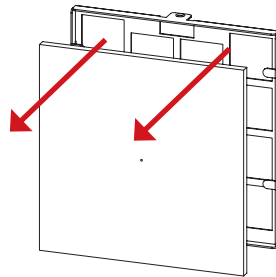
1: Remove cabinet cover (see beginning of this chapter). When cabinet cover is off, unscrew 1 screw on top which keeps the Air Filter Bracket in place. Turn anti-clockwise using a Pozidriv #2 screwdriver.



2: Gently pull/slide out the Air Filter Bracket.



3: Gently pull out the Air Filter away from the Air Filter Bracket. Either clean or replace it.



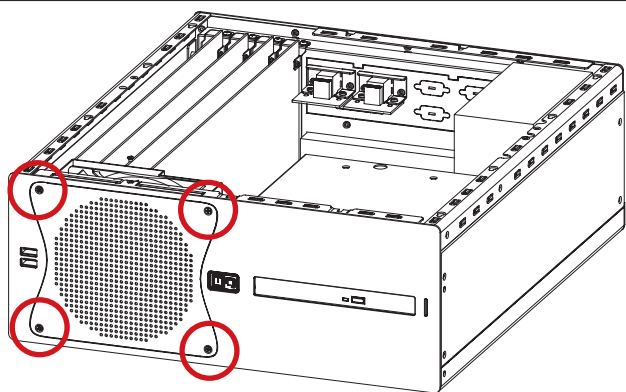
Repeat the procedure backwards to finalize operation.

General Installation Recommendations

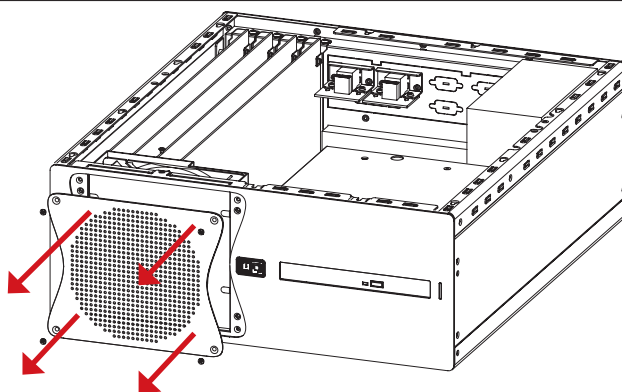
Front Fan removal / replacement

Note: Areas of interest are marked in this section with circles and arrows in **RED** color. Please disconnect ALL cables from the computer unit before proceeding!

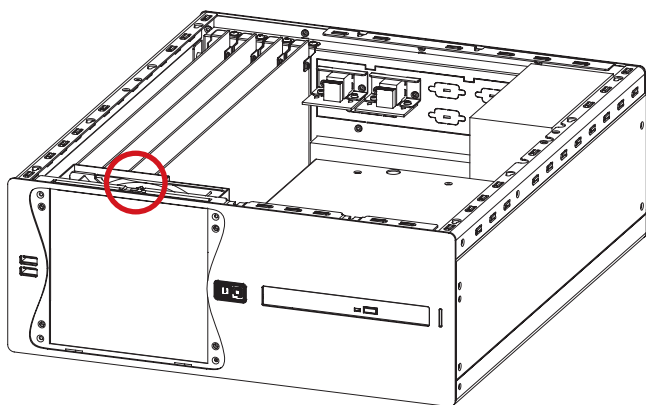
1: Remove cabinet cover (see beginning of this chapter)
When cabinet cover is off, unscrew 4 screws from the fan/filter cover in front of the unit. Turn anti-clockwise using a Pozidriv #2 screwdriver.



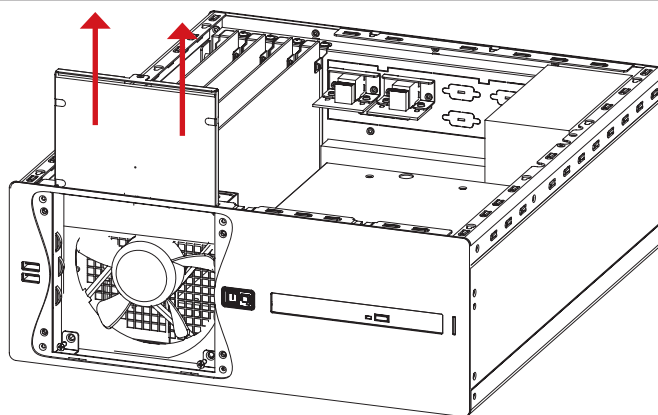
2: Gently pull out the fan/filter cover.



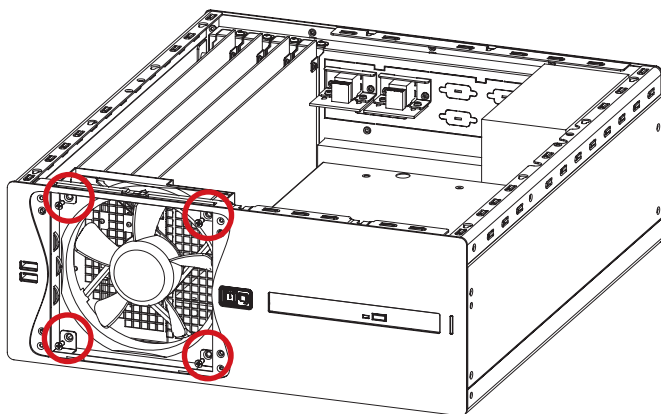
3: Unscrew 1 screw on top that keeps the Air Filter Bracket in place. Turn anti-clockwise using a Pozidriv #2 screwdriver.



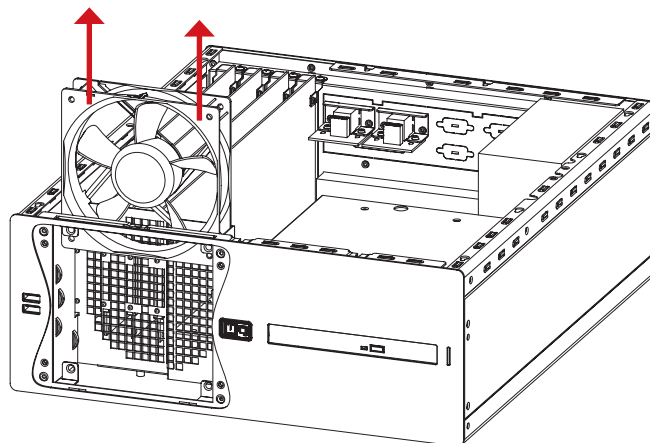
4: Gently pull up the Air Filter Bracket.



5: Unscrew 4 screws that keeps the fan in place. Turn anti-clockwise using a Pozidriv #2 screwdriver.



6: Lift/slide the fan up from the unit.



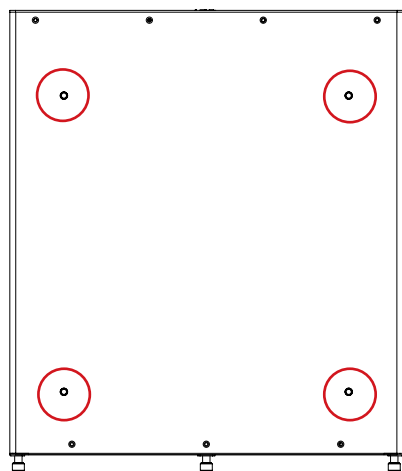
Repeat the procedure backwards to finalize operation.

General Installation Recommendations

Mounting Brackets for Console Mounting

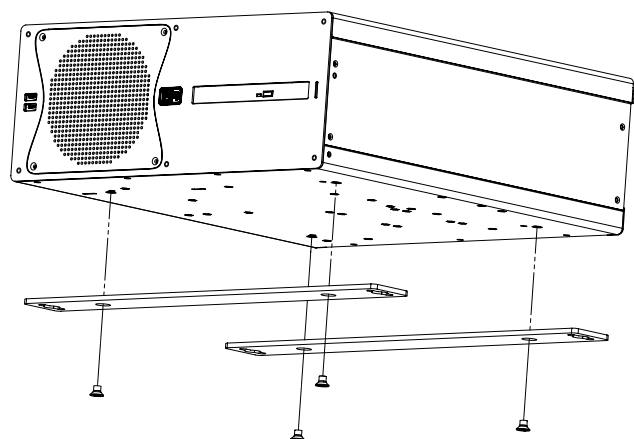
Note: The unit comes with mounting brackets and screws for console mounting in the package. Please review specifications and “Technical Drawings - Accessories” chapter in this user manual for additional information.

1: Bottom view showing 4 mounting holes.



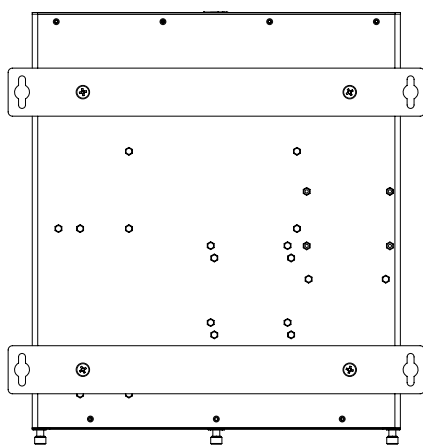
Connector Side

2: Mount the brackets with 4 x M6x8.



Note: Other/longer screws may damage the computer!

3: Bottom view with mounted brackets.

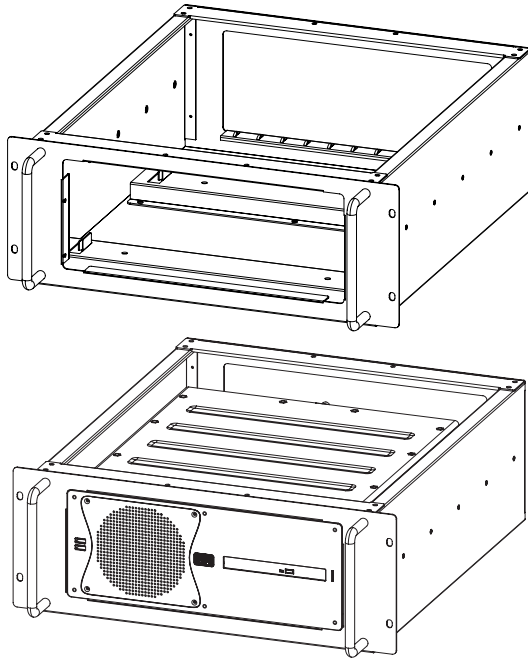


General Installation Recommendations

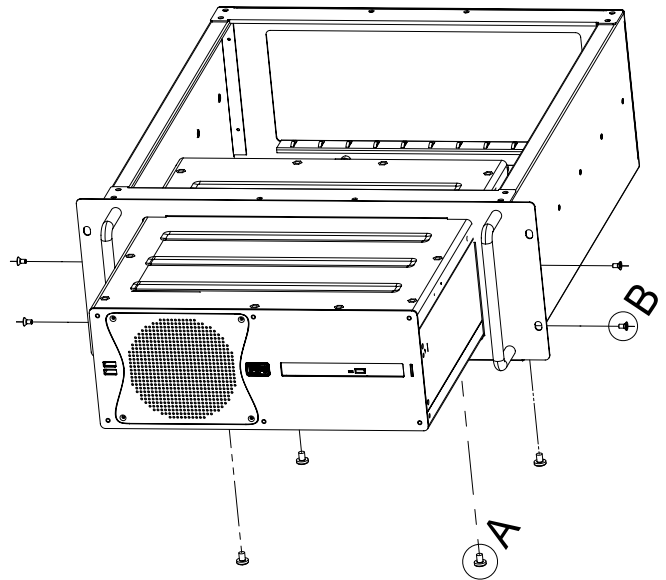
19 inch Rack Kit 4U

Note: The unit can also be mounted inside a Hatteland Display 4U cabinet for rack mounting purposes. Please review specifications and “Technical Drawings - Accessories” chapter in this user manual for additional information.

1: Empty 4U cabinet suitable for the computer and final solution (note that there is no 4U top cover)



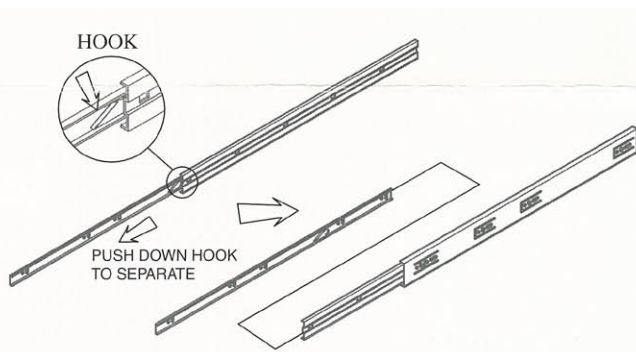
2: Showing mounting and screw (included) positions.
A = 4 Panhead M6 x 8 (mounted from under)
B = 4 Countersunk M4 x 8 (4 on each side)



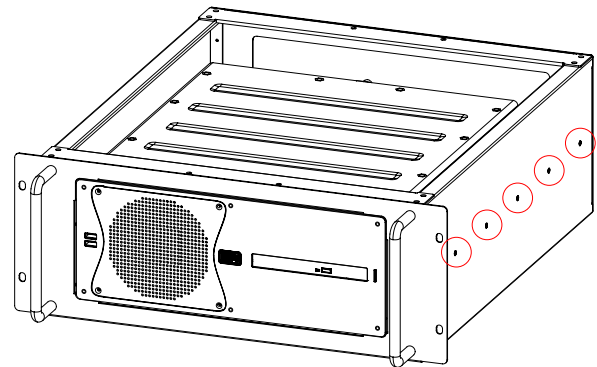
Sliding Rails

Note: The 19 inch Rack Kit 4U can also be mounted with sliding rails 20" or 26". Please review 3rd party mounting instructions found in the Sliding Rails package.

1: The 3rd party sliding rails shown below. The 4U cabinet supports both 20" or 26" sizes depending on option chosen.

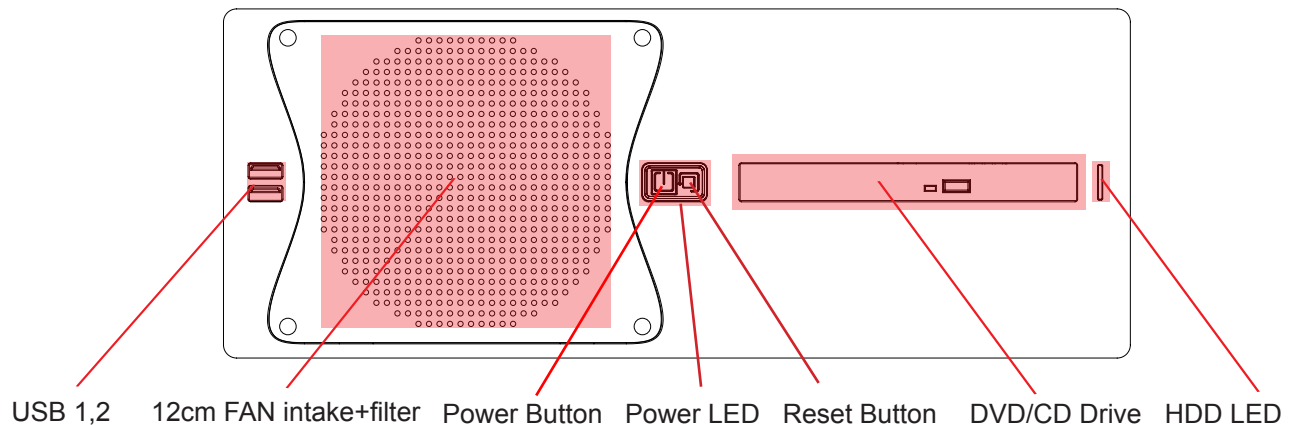


2: Mount the sliding rails on each side of the 4U cabinet. Fasten it with 5 screws (included) as indicated.



Physical Connections

Front area of computer



USB1,2 INPUT/OUTPUT:

Supports any USB1.1 (12Mbps) or USB2.0 (480Mbps) compliant peripherals. Drivers for most USB devices are usually included in operating system or on separate installation CD's delivered with Third Party products. USB 1.1 devices will operate in USB 1.1 mode (12 Mbps).



POWER LED:

The Power LED Indication ring will illuminate static green when powered on. When power is off and the unit is turned off, the LED will also off.



Power Button:

To turn ON the computer, press down button and release it immediately. The Power LED indication ring will illuminate green and the operating system will automatically boot. To turn OFF the computer, press down this button and hold it for 3 seconds. The operating system may require additionally tasks to be performed before computer shuts down and turns off the unit.



Reset Button: (Hard Reset)

To reset the computer in case of severe software failure, press this button. This reset button is a hard reset which means the operating system will NOT be warned. Using this reset method may damage files and / or operating system in worst case scenarios. Precaution should be taken when using this. To perform a safe software reset, press either the power button, or use the operating system own reset functionality if possible.

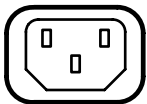
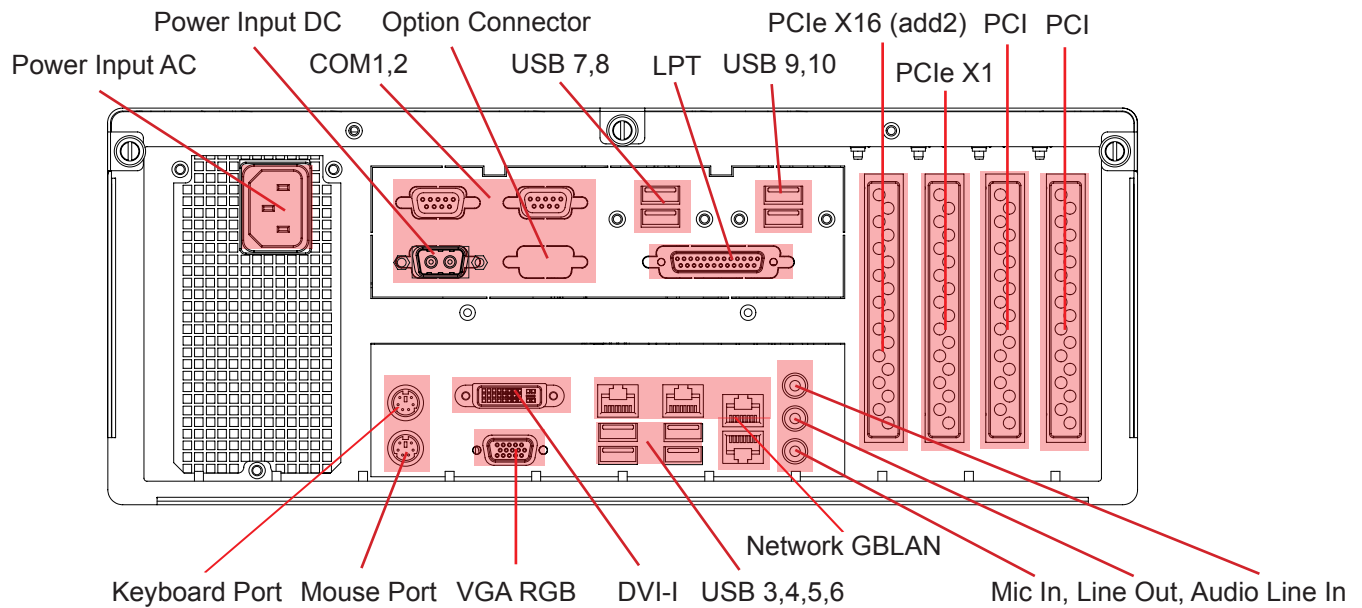


HDD LED:

The Power LED Indication will illuminate green when HDD is reading/writing. When there is no HDD activity the LED will be off.

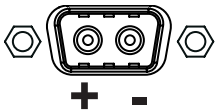
Physical Connections

Connector area of computer



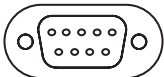
Power INPUT: (For units supporting AC input)

The internal AC power module supports both 115VAC/60Hz and 230/50Hz power input using a standard IEC European power plug. See specifications for more information.



POWER INPUT: (For units supporting DC input)

Connect your DC power cable to the 2P Amphenol FCC17 D-SUB Connector (male). Secure the cable to the hex spacers provided on the unit, and secure the other end to your power supply. The internal DC power module supports 24VDC. Please check specifications for your unit.



COM1,2 Serial Port INPUT/OUTPUT:

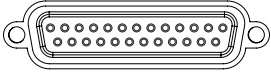
Supports RS-232 using D-SUB 9P Male connectors. Fasten the cable to the connector using the provided screws on the cable housing itself.



USB7,8 and USB9,10 INPUT/OUTPUT:

Supports any USB1.1 (12Mbps) or USB2.0 (480Mbps) compliant peripherals. Drivers for most USB devices are usually included in operating system or on separate installation CD's delivered with Third Party products. USB 1.1 devices will operate in USB 1.1 mode (12 Mbps).

Physical Connections



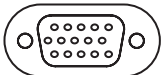
LPT1 Parallel Port INPUT/OUTPUT:

Standard LPT1 Printer/Parallel (SPP/EPP/ECP) port using a D-SUB 25P Female connector. Fasten the cable to the connector using the provided screws on the cable housing itself.



PS/2 Mouse and PS/2 Keyboard INPUTS:

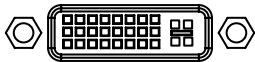
Connect the PS/2 mouse cable to the PS/2 5P Connector (female) marked with MS. Connect the PS/2 keyboard cable to the PS/2 5P Connector (female) marked with KB.



VGA/RGB OUTPUT:

Will output a signal from the computer for use with external display or monitor. Connects via a High Density D-SUB 15P Female connector. Fasten the cable to the connector using the provided screws on the cable housing itself.

Note: Signal Output will be disabled if additional graphics card is installed and present in one of the PCI/PCIe slots!



DVI-I OUT:

Connect your DVI cables to the DVI-I 24P Connectors (female) on the rear side of the unit. If possible, screw the DVI cables to the connectors and make sure you don't bend any of the pins inside the DVI cable connector.

Note: Signal Output will be disabled if additional graphics card is installed and present in one of the PCI/PCIe slots!

The DVI-I OUT connector can be configured as RGB OUT with the provided DVI-RGB adapter. However, the signal outputted is a direct clone of RGB OUT signal. For true independent output, please connect a VGA/RGB cable to RGB OUT and a DVI cable to DVI-I OUT (without DVI-RGB adapter) to achieve two different desktop outputs to two different displays or monitors. Please note that due to technical limitations, you can not achieve 2 x VGA/RGB outputs simultaneously. If the adapter is used on DVI-I port, the VGA/RGB DB15F and adapter output will be sharing the same signal, and if both outputs are used for external monitors, it could result in a unreliable and deteriorated signal and quality output.



USB3,4,5,6 INPUT/OUTPUT:

Supports any USB1.1 (12Mbps) or USB2.0 (480Mbps) compliant peripherals. Drivers for most USB devices are usually included in operating system or on separate installation CD's delivered with Third Party products. USB 1.1 devices will operate in USB 1.1 mode (12 Mbps).



Network INPUT/OUTPUT:

Supports 10/100/1000Mbps Ethernet (LAN). Suitable for twisted pair cables CAT.5E. Make sure the network cable connector "clicks" into the RJ-45 connector.



Audio INPUT/OUTPUT:

All connectors are 3.5" Jack Stereo. AC'97 audio support. Either function as Stereo Line In, Stereo Line Out and Stereo MIC In or as 6-channel surround out where configuration is as follows:

Line In	- Rear Sound L/R
Line Out	- Front Sound L/R
Mic In	- Center/Subwoofer Sound.

These settings can be modified within the audio driver software.

Physical Connections

PCIe X16 (add2) Slot:

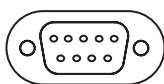
Supports Full Height and Full Length Profile card in one available slot. Cards is normally installed from factory. Please review the General Installation Recommendations chapter in this manual for more information. Additionally consult the 3rd party manual available on the attached documentation CD delivered with this unit.

PCIe X1 Slot:

Supports Full Height and Full Length Profile card in one available slot. Cards is normally installed from factory. Please review the General Installation Recommendations chapter in this manual for more information. Additionally consult the 3rd party manual available on the attached documentation CD delivered with this unit.

PCI Rev2.3 Slots:

Supports Full Height and Full Length Profile card in two available slots. Cards is normally installed from factory. Please review the General Installation Recommendations chapter in this manual for more information. Additionally consult the 3rd party manual available on the attached documentation CD delivered with this unit.



AMPLIFIED AUDIO OUT - Option Connector (Factory Mounted):

Offers 2W Amplified Mono/Stereo Audio Out via 1 x DSUB 9P Female connector (HT 00235 OPT-A1), please refer to datasheet and Pinout Assignments for more information.

Specifications

Specifications - HT C01

TECHNICAL DESCRIPTION

Computer Specifications: (Standard model)

• Installed Operating System	: None for standard version (check Accessories / Options below for OS options)
• Media Drive	: 1 x DVD-RW/CD-RW Dual Recorder/Player
• Processor	: 1 x Intel® Core™2 Duo Desktop Processor E8400 - 3.0GHz, Bus Speed 1333MHz, 6MB L2 Cache
• Memory	: 2 x 1GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
• Graphics	: Intel® Graphics Media Accelerator 3100 (Intel® GMA 3100) integrated Note: DVI-I signal support VGA/RGB output via adapter. Due to hardware design achieving 2 x VGA/RGB outputs simultaneously is not possible
• Graphics Resolution	: Max 2048 x 1536 @ 75Hz
• System Chipset	: Intel® Q35 / ICH9DO support Intel® Active Management Technology
• IO Chipset	: Winbond W83627DHG-A
• BIOS	: AWARD BIOS
• PCI Slots	: 2 x PCI Rev2.3 Slot 32-bit, 3V and 5V Interface, Full Height & Length
• PCIe Slots	: 1 x PCI Express X16 (add2), Full Height & Length + 1 x PCI Express X1, Full Height & Length
• Ethernet #1	: 2 x 10/100/1000Mbps, Intel® 82566DM Gigabit LAN support Intel AMT
• Ethernet #2	: 2 x 10/100/1000Mbps, Realtek RTL 8168C(P)8111C PCI-E Gigabit
• Serial Ports	: 2 x RS-232
• Parallel Port (LPT)	: 1 x Bi-Directional Centronics with ECP or EPP mode
• USB Ports	: 10 x USB ports (8 in rear, 2 in front) - Supports 2.0 & 1.1
• Keyboard Port	: Standard PS/2 mini DIN connector
• Mouse Port	: Standard PS/2 mini DIN connector
• Audio	: Realtek® ALC888, 7.1, Mic. in, Line in, Line out, 3.5mm or option
• Speaker	: No
• Power Manager	: ACPI
• Watchdog Timer	: Reset: 1 sec.~255 min. and 1 sec. or 1 min./step
• H/W Status Monitor	: Temperatures, voltages & cooling fan status. Auto throttling control if CPU overheats

External Connector Type:

1 x DVI-I and 1 x DB15F
simultaneously is not possible

2 x RJ-45
2 x RJ-45
2 x DB9M
1 x DB25F
10 x USB Type A
1 x PS/2
1 x PS/2
3 x JACKS (+1 x DB9F)

Power Supply Options:

• 115&230VAC - 50/60Hz	: Model HT C01 STx-Axxx (330W)
• 24 VDC	: Model HT C01 STx-Dxxx (220W)
• Power Consumption - Operating	: 70W typical (HT C01 STx-A100) - 70W typical (HT C01 STx-D100)

STD IEC
1 x 2p D-SUB (male) Amphenol FCC17

Available Models:

HT C01 STD-A100 or -D100 with:

1 x Intel® Core™2 Duo Desktop Processor E8400 - 3.0GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
1 x Easy Replaceable Automotive HDD 1TB or more* 2.5" SATA, 5400RPM, 8MB Buffer
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

HT C01 STD-A101 or -D101 with:

1 x Intel® Core™2 Duo Desktop Processor E8400 - 3.0GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
1 x Easy Replaceable Automotive HDD 1TB or more* 2.5" SATA, 5400RPM, 8MB Buffer
1 x Bluestorm Serial I/O card (4 x COM Ports - Supports RS-232/422/485)
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

HT C01 STD-A102 or -D102 with:

1 x Intel® Core™2 Duo Desktop Processor E8400 - 3.0GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
1 x Easy Replaceable Automotive HDD 1TB or more* 2.5" SATA, 5400 RPM, 8MB Buffer
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)
1 x Matrox® P690 DualHead Graphics Card, PCIe, DVI-I, 128MB, Max 2048 x 1536*
** If 1600x1200 resolution is used, DVI signals must be set to CVT-RB (Coordinated Video Timing-Reduced Blanking) mode manually.*

HT C01 STD-A104 or -D104 with:

1 x Intel® Core™2 Duo Desktop Processor E8400 - 3.0GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
1 x 40GB or more* 2.5" SATA Solid State Disk (SSD)
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

* Size indicated is the lowest size available/approved for current revision of data sheet. The unit will support increased disk space in future. Please contact sales for up-to-date status.

Available Accessories:

• HT 00225 OPT-A1 = 2 x 26" ball bearing sliding rail and mounting kit for 19" Rack	• HT 00229 OPT-A1 = 1 x Mounting Bracket PCI Kit HT C01
• HT 00224 OPT-A1 = 2 x 20" ball bearing sliding rail and mounting kit for 19" Rack	• JH C01MF A-A = 1 x USB Cable 1m, Type A to Chassis mount receptacle
• HT 00223 OPT-A1 = 1 x 4U 19" Rack Case Kit (compatible with HT 00224/00225)	• HT 00235 OPT-A1 = 1 x 2W Amplified Audio out via 1 x DB9F
• HT 00226 OPT-A1 = 2 x Mounting Bracket, 4mm SECC+Zinc Plating, RAL9011*	• HT 00300 MSOS = OS options -> http://www.hatteland-display.com/os

Models without/with OS:

• HT C01 ST0-xxxx	= No OS
• HT C01 STD-xxxx	= Microsoft® Windows® Embedded Enterprise (Win XP Pro Eng w/SP2c, 32bit)
• HT C01 ST3-xxxx	= Microsoft® Windows® Embedded Enterprise (Win Server 2003 Eng, 32bit)
• HT C01 ST7-xxxx	= Microsoft® Windows® Embedded Enterprise (Win 7 Pro Eng, 32bit)
• HT C01 ST8-xxxx	= Microsoft® Windows® Embedded Enterprise (Win Server 2008 Eng, 32bit)

*Please see user manual/datasheet for more information *included with standard delivery

Capabilities / Prepared for:

For a full overview of model typenumbers, please review the following link: www.hatteland-display.com/pdflink/ind100780-5.php

• HT 00253 OPT-A1 = 4 x COM isolated, incl. cable, RS232/422/485	• 8GB (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM) memory
• HT 00252 OPT-A1 = 8 x COM isolated, incl. cable, RS232/422/485	

MECHANICAL DESCRIPTION

Physical Specifications:

- 345.00 (W) x 133.00 (H) x 390.00 (D) mm
- 13.58" (W) x 5.24" (H) x 15.35" (D)
- Weight: 10 kg (approx)
- Power button, power led, reset button and HDD Led in front
- Replaceable Air Filter in front
- Includes Mounting Brackets (for console mounting)

Compass Safe Distance HT C01 STx-xxxx = Standard: 155cm/Steering: 95cm

Environmental Considerations:

- Operating : Temperature -15 deg. C to +55 deg. C
Humidity up to 95%
DNV Temperature Class B +70 deg. C for 2 hours
- Storage : Temperature -20 deg. C to +60 deg. C
Humidity up to 95%

Lifetime Considerations:

Even although the test conditions for bridge units provide for a maximum operating temperature of 55°C, continuous operation of all electronic components should, if possible, take place at ambient temperatures of only 25°C. This is a necessary prerequisite for long life and low service costs.

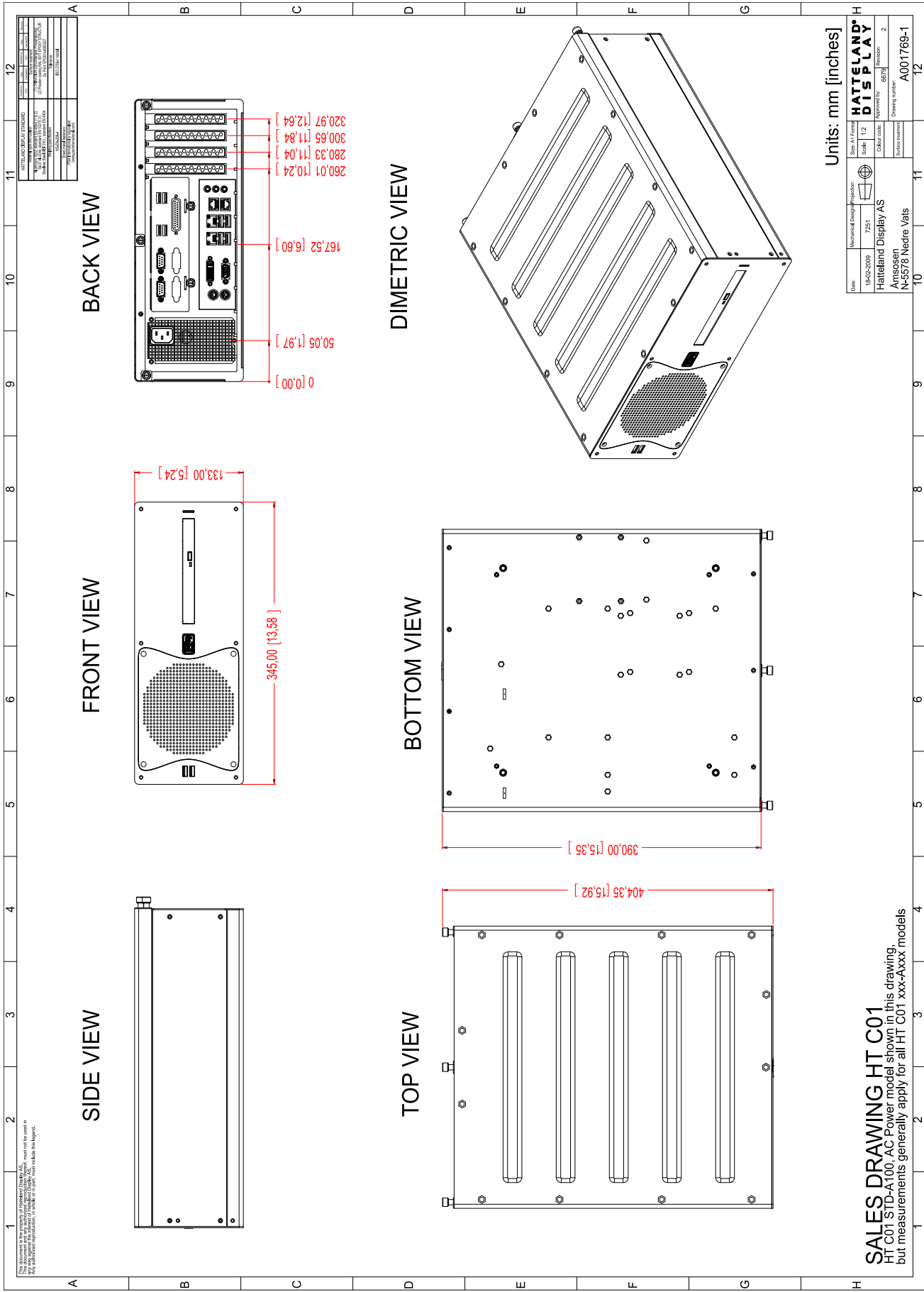
APPROVALS & CERTIFICATES

IEC 60945 4th (EN 60945:2002) LRS - Lloyd's Register of Shipping	These products have been tested / type approved by the following classification societies: IACS E10 GL - Germanischer Lloyd	EN61162 BV - Bureau Veritas	ClassNK - Nippon Kaiji Kyokai ABS - American Bureau of Shipping	DNV - Det Norske Veritas EU RO MR - Mutual Recognition
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Technical Drawings

Technical Drawings - HT C01

Dimensions might be shown with or without decimals and indicated as +/- 1mm. For accurate measurements, check relevant DWG file.



AC Model

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<i>DC Model</i>	35
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INB100042-4 (Rev 19)

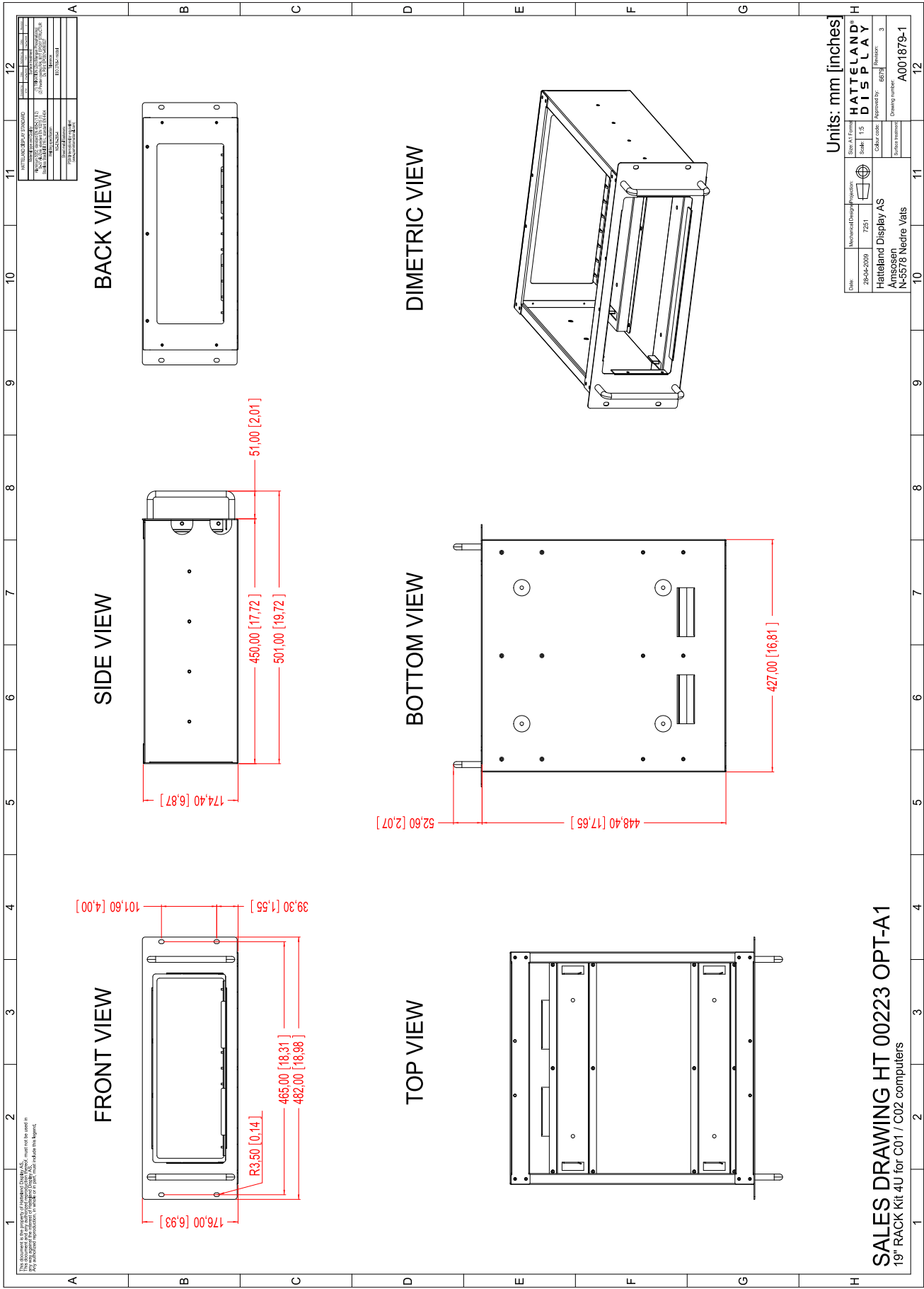
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Technical Drawings - Accessories

Technical Drawings - 19" Rack Kit 4U

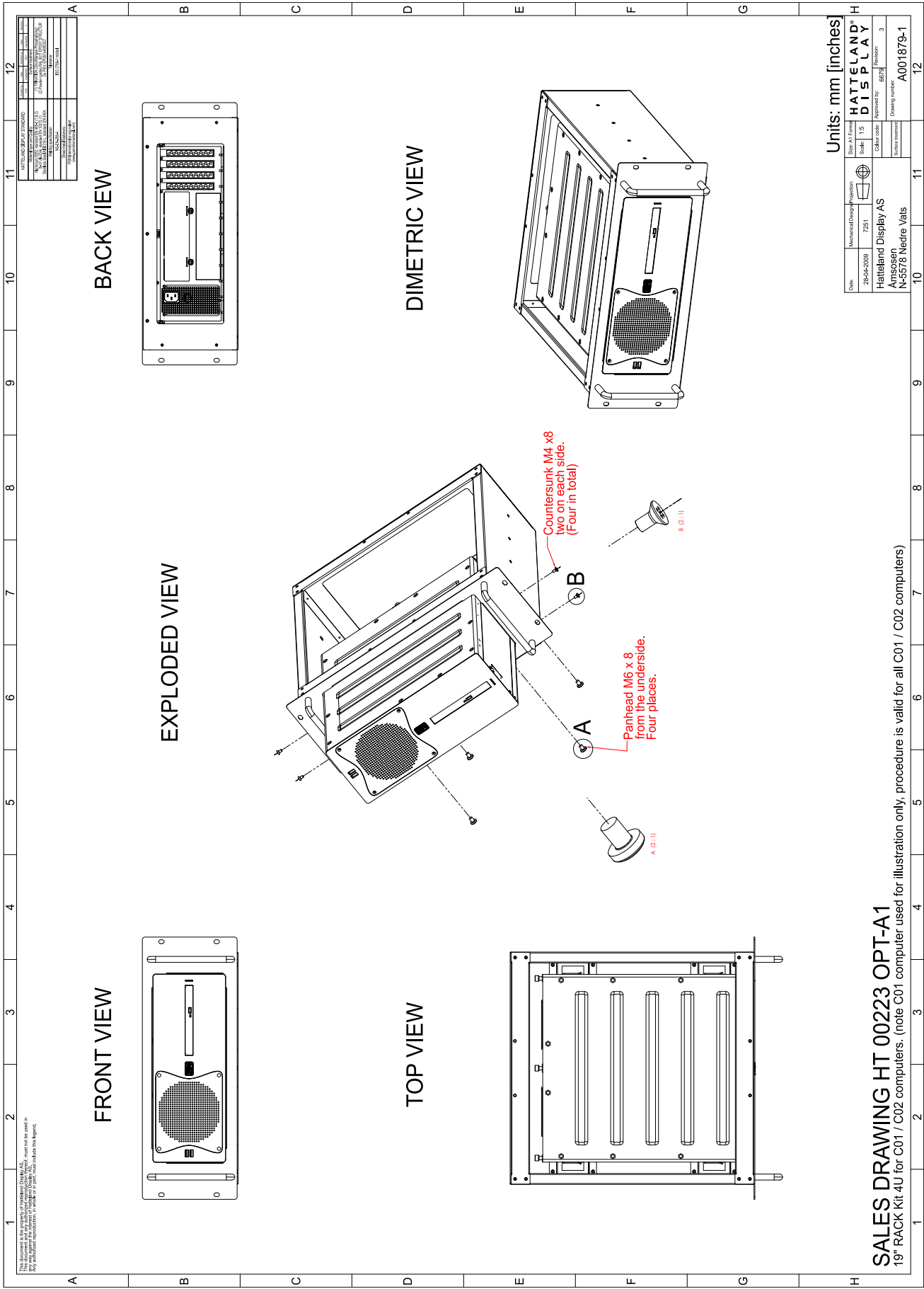
Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.



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Technical Drawings - 19" Rack Kit 4U

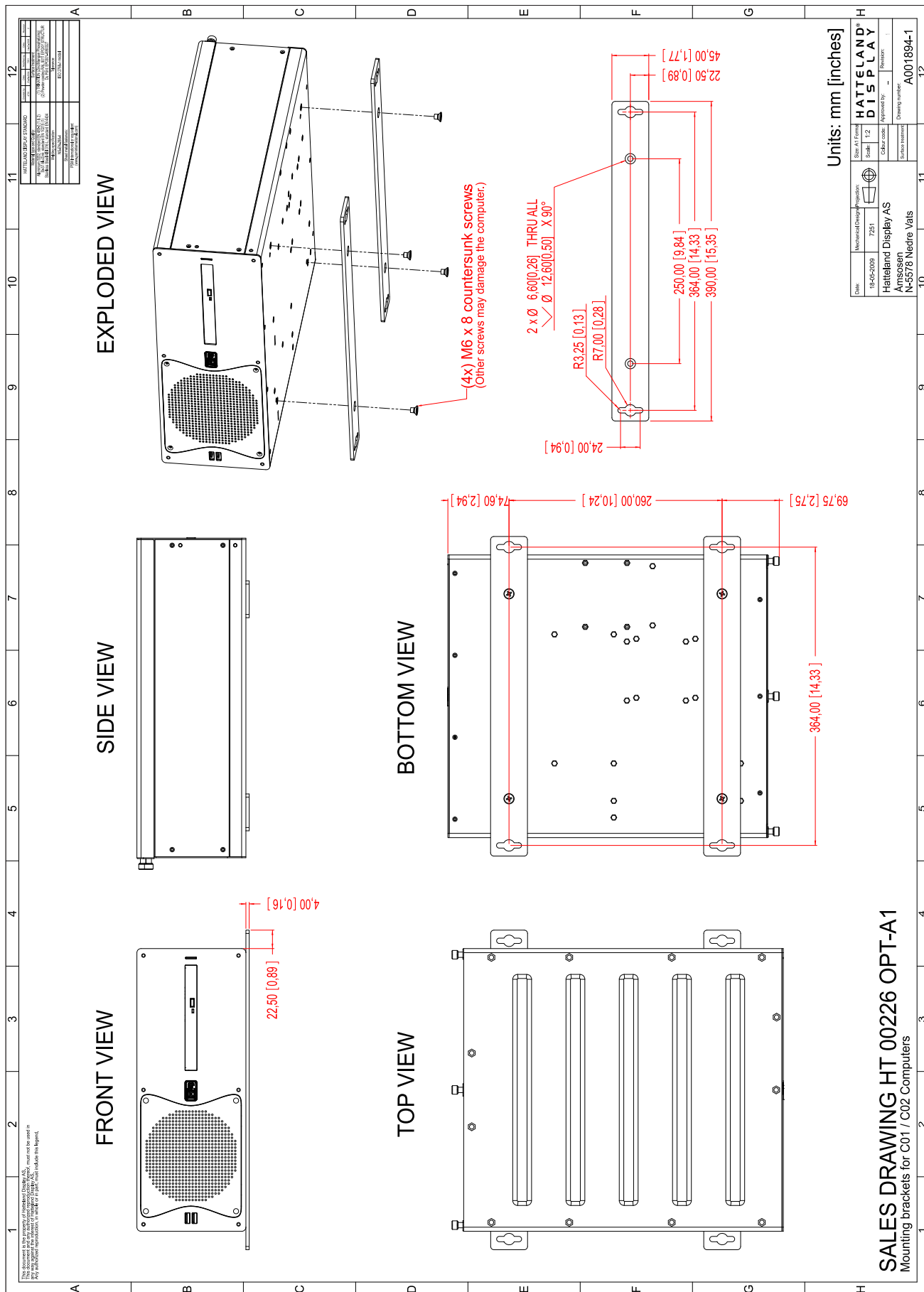
Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.



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Technical Drawings - Mounting Brackets

Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.



HT 00226 OPT-A1

40

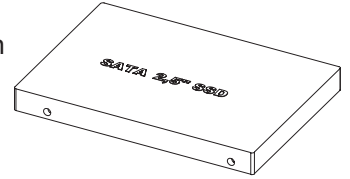
Appendixes

SSD Selection Guide

Solid State Disk (SSD) Devices

Last revised : 4 November 2014

SSD's has many benefits over conventional hard drives, but when it comes to write endurance it is important to choose the technology to be used with care. It is of very high importance to consider several aspects when using an SSD for a particular application, below the most critical ones, such as:



- **Nature of the application, data written to disk during a defined time period (worst case).**
- **Operating System (OS) and applications settings, optimized for SSD.**
- **SSD selection, there are several choices of price and performance.**
- **Expected system life, using worst case calculations.**

SSD devices have limited life time. The life time of the SSD device is direct dependent of the application software.

- **Selection / dimensioning of SSD device is required for each unique application.**
- **Selection / dimensioning of SSD device have to be done of the system house.**
- **Selection / dimensioning of SSD device shall be done towards data rate , size of footprint is secondary and in most cases not the dimensioning factor.**

Hatteland Displays Recommendations, MLC device

Use of OS image adapted for HDD without any modifications for SSD:

> Do not use SSD.

Basic SSD configuration of OS but not considered SSD in application SW and no estimation of amount of written data:

> Do not use SSD.

Basic SSD configuration of OS and basic consideration of SSD in application SW. Estimation based at guess, but actual amount of written data not known:

- > Select next larger device, i.e if calculation gives 80GB, select 120GB instead.
- > Minimum size 80GB.

Actual data known, based at measurements at actual application, running in worst case scenario:

> Select device according to calculation.

SSD Selection Guide

Calculation of required size of SSD (Multi-Level Cell - MLC) device)

The table below details the write endurance of the an enterprise environment. All values are verified by Hatteland Display during the qualification / selection process.

Write Endurance Specifications Intel® SSD 320 Series		Write Endurance Specifications Current 2.5" SSD (MLC)	
Device Size	Value in TBW (Terabytes)	Device Size	Value in TBW (Terabytes)
40 GB	5	80 GB	45
80 GB	10	120 GB	70
120 GB	15	160 GB	100
160 GB	15	240 GB	140
300 GB	30	300 GB	225
600 GB	60	600 GB	330
Write endurance is measured while running 100% random 4KB (4096 bytes) writes spanning 100% of the drive using Iometer.		JESD218 standard1 and based on JESD219 workload.	

Formula for calculating disk size:

$$z = y * x$$

Where **y** = Requested minimum lifetime (with respect to wear out, [year]).

Where **x** = Data rate (GB /per year).

Where **z** = Total amount of data written data to SSD during its whole lifetime.

Step-by-Step Calculation

Step 1: Measure (preferred) or estimate data rate **y**, [GB /per year].

Step 2: Define minimum expected lifetime for SSD device **x** [year].

Step 3: Calculate total amount of data written to the SSD during its whole lifetime, **z** = **y** * **x**.

Step 4: Use table, **column 2**, the **z** value shall be less or equal to the value in the table to achieve requested lifetime.

Write Endurance Specifications Intel® SSD 320 Series		Write Endurance Specifications Current 2.5" SSD (MLC)	
Device Size	Value in TBW (Terabytes)	Device Size	Value in TBW (Terabytes)
40 GB	5	80 GB	45
80 GB	10	120 GB	70
120 GB	15	160 GB	100
160 GB	15	240 GB	140
300 GB	30	300 GB	225
600 GB	60	600 GB	330

Step 5: Select the SSD device, **column 1**, which corresponds to the selected value in **column 2**.

Step 6: Check that the size of the selected SSD is greater than required size of the SSD, if not select the size of the SSD that match customer requirements.

SSD Selection Guide

Example (based on Intel® SSD 320 Series)

A general assessment based on requirements to determine the most suitable SSD device. When these factors are known or specified in detail, we can calculate and conclude which SSD device is most suitable (see bottom of page).

Question	Client Answer
We need to know how much data is written to disk (worst case) during a known time period (per second, minute, hour etc.) and the nature of this data?	Chart Data : 2GB /Week Log/User Data : 10kB /Sec Swap Data : 100kB /Sec
How much space is used on as fixed for your application?	40GB over : Chart Data Area (typical Chart size is 30GB) 1GB : Log Data and User Data area 4GB : Swap Area
How long time shall this disk work with no problems?	5 years

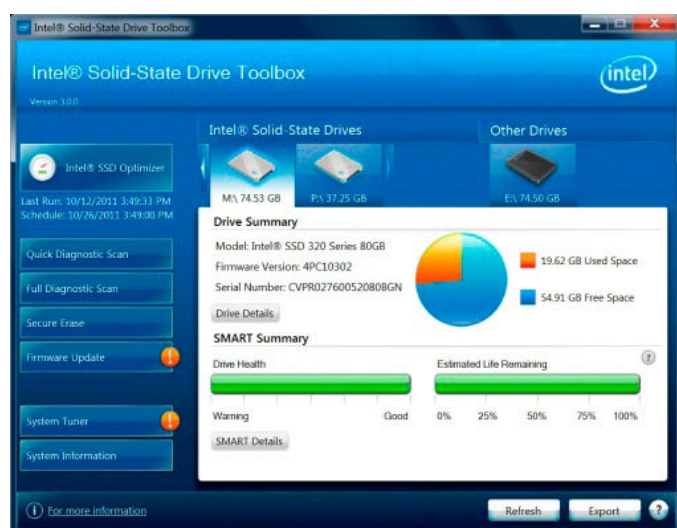
Example Calculation and Conclusion

Calculation / Estimation of data rate:

Step	Factors	Formula	Result
1	Chart Data: 2GB /Week	$2\text{GB} * 52$	= 104 GB /Year
	Log data and User Data: 10kB /Sec	$10\text{kB} * 60 * 60 * 24 * 365$	= 315 GB /Year
	Swap Data: 100kB /Sec	$100\text{kB} * 60 * 60 * 24 * 365$	= 3.15 TB /Year
	Total		= 3.57 TB/Year
2	Required lifetime:	5 years	
3	Calculate total amount of data written to the SSD during its whole lifetime:	$3.57\text{TB} * 5$	= 17.8 TB
4	Select Disk Using Table	Conclusion	= 300GB SSD Device shall be used.

Measure of number of write cycles (Intel® Solid-State Drive Toolbox software)

Download Software from: https://downloadcenter.intel.com/Detail_Desc.aspx?agr=Y&DwnldID=18455



SSD Selection Guide

Preparation

- 1: Install "Intel® Solid-State Drive Toolbox" at target system.
- 2: Install the unit in valid configuration, i.e. the application shall running valid use case, if possible use worst case scenario (with respect to disk activity).
- 3: Before start of measurement, check and store actual SMART data.
 - Start "Intel® Solid-State Drive toolbox".
 - Refresh (button at home screen).
 - Export SMART data, store current data at file (button at home screen).

Measurement

- 1: Check and save time for start test scenario.
- 2: Execute the test scenario long enough to cover all valid use cases which may affect disk activity. (Recommended measurement period is at least 1 week without interruption).
- 3: When the measurement is completed...
 - Check and save time for completion of the test scenario.
 - Start Intel® Solid-State Drive toolbox.
 - Refresh (button at home screen).
 - Export SMART data, store current data at file (button at home screen).

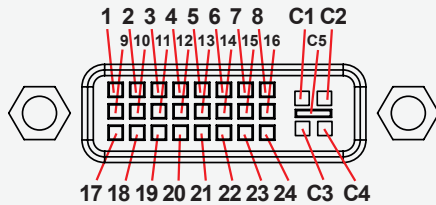
Calculation

- 1: Calculate number of written bytes during the measurement period, use E1 or F1 parameter (stored log file).
Number of written bytes per second = $(F1_{\text{completion}} - F1_{\text{start}}) / (Time_{\text{completion}} - Time_{\text{start}})$
- 2: Convert to bytes per year.
- 3: Calculate expected life time (see previous time, section "Step-by-Step Calculation").

Pinout Assignments - Common Connectors

Connectors illustrated here are either standard by factory default or may be available (through factory customization). Note that some combinations may not be possible due to space restrictions. List also valid for customized models. All pin out assignments are seen from users Point of View (POV) while looking straight at the connector. Please review the dedicated datasheet or technical drawings for your actual unit to identify and determine the presence of desired connector.

18/24/24+5 pin DVI-D, DVI-I, Single Link, Dual Link Combined Female



PIN 01	T.M.D.S. Data2 - (Digital - RED link 1)
PIN 02	T.M.D.S. Data2 + (Digital + RED link 1)
PIN 03	T.M.D.S. Data2/4 Shield
PIN 04	T.M.D.S. Data4 - (Digital - GREEN link 2)
PIN 05	T.M.D.S. Data4 + (Digital + GREEN link 2)
PIN 06	DDC Clock
PIN 07	DDC Data
PIN 08	Analog Vertical Sync (DVI-I only)
PIN 09	T.M.D.S. Data1 - (Digital - GREEN link 1)
PIN 10	T.M.D.S. Data1 + (Digital + GREEN link 1)
PIN 11	T.M.D.S. Data1/3 Shield
PIN 12	T.M.D.S. Data3 - (Digital - BLUE link 2)
PIN 13	T.M.D.S. Data3 + (Digital + BLUE link 2)
PIN 14	+5V Power (for standby mode)
PIN 15	Ground (for +5V and analog sync)
PIN 16	Hot Plug Detect
PIN 17	T.M.D.S. Data0 - (Digital - BLUE link 1) and digital sync.
PIN 18	T.M.D.S. Data0 + (Digital + BLUE link 1) and digital sync.
PIN 19	T.M.D.S. Data0/5 Shield
PIN 20	T.M.D.S. Data5 - (Digital - RED link 2)
PIN 21	T.M.D.S. Data5 + (Digital - RED link 2)
PIN 22	T.M.D.S. Clock Shield
PIN 23	T.M.D.S. Clock + (Digital clock + (Links 1 and 2)
PIN 24	T.M.D.S. Clock - (Digital clock - (Links 1 and 2)
PIN C1	Analog RED
PIN C2	Analog GREEN
PIN C3	Analog BLUE
PIN C4	Analog Horizontal Sync.
PIN C5	Analog Ground (return for RGB signals)

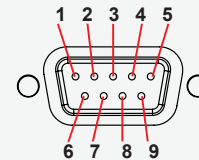
DDC = Display Data Channel.

.M.D.S = Transition Minimized Differential Signal

PIN C1,C2,C3,C4 = Only present on DVI-I connectors.

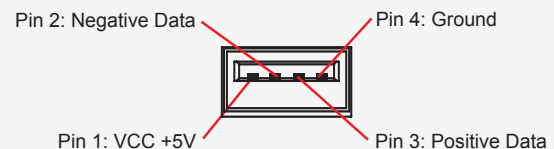
NOTE: Connector shows a DUAL LINK design, but some units may not support it. Only units with 1920x1200 or more in resolution require / support DUAL LINK.

Serial COM RS-232 non-isolated, 9-pin DSUB Male

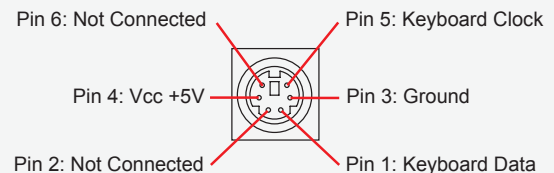


PIN 01	DCD	Data Carrier Detect
PIN 02	RxD	Receive Data
PIN 03	TxD	Transmit Data
PIN 04	DTR	Data Terminal Ready
PIN 05	GND	Signal Ground
PIN 06	DSR	Data Set Ready
PIN 07	RTS	Request To Send
PIN 08	CTS	Clear To Send
PIN 09	RI	Ring Indicator

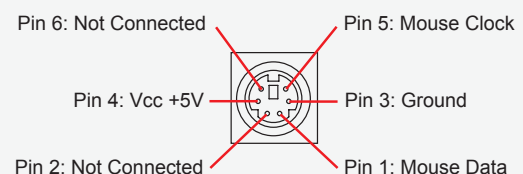
4-pin USB TYPE A



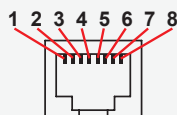
5-pin PS/2 KEYBOARD Female



5-pin PS/2 MOUSE Female



8-pin RJ45 10/100/1000Mbps LAN/Ethernet



PIN 01	D0P+	Differential Pair 0 (Positive)
PIN 02	D0N-	Differential Pair 0 (Negative)
PIN 03	D1P+	Differential Pair 1 (Positive)
PIN 04	D2P+	Differential Pair 2 (Positive)
PIN 05	D2N-	Differential Pair 2 (Negative)
PIN 06	D1N-	Differential Pair 1 (Negative)
PIN 07	D3P+	Differential Pair 3 (Positive)
PIN 08	D3N-	Differential Pair 3 (Negative)

2P DC Power Input on unit

Amphenol FCC17 D-SUB MALE

Pin 1: +24VDC Pin 2: Ground



2P DC Power Input Housing

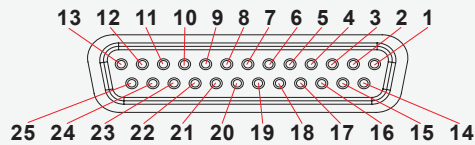
FCE17-E2W2SS-2N0

Pin 2: Ground Pin 1: +24VDC



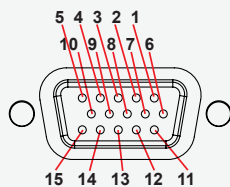
Pinout Assignments - Common Connectors

25-pin Female Parallel (Optional for selected computers)



Pin 01	STROBE	This signal indicates to the printer that data at PD7..0 are valid.
Pin 02	DATA0	Parallel data bus from PC board to printer. The data line are able to operate in PS/2 compatible bi-directional mode.
Pin 03	DATA1	Same as Pin 02
Pin 04	DATA2	Same as Pin 02
Pin 05	DATA3	Same as Pin 02
Pin 06	DATA4	Same as Pin 02
Pin 07	DATA5	Same as Pin 02
Pin 08	DATA6	Same as Pin 02
Pin 09	DATA7	Same as Pin 02
Pin 10	ACK	Signal from printer indicating that the printer has received the data and is ready to accept further data.
Pin 11	BUSY	Signal from printer indicating that the printer cannot accept further data.
Pin 12	PE	Signal from printer indicating that the printer is out of paper.
Pin 13	SELECT	Signal from printer to indicate that the printer is selected.
Pin 14	AUTO FEED	This active low output causes the printer to add a line feed after each line printed.
Pin 15	ERR#	Signal from printer indicating that an error has been detected.
Pin 16	INIT#	This active low output initialises (resets) the printer.
Pin 17	SLIN#	Signal to select the printer sent from CPU board to printer.
Pin 18	GND	Ground
Pin 19	GND	Ground
Pin 20	GND	Ground
Pin 21	GND	Ground
Pin 22	GND	Ground
Pin 23	GND	Ground
Pin 24	GND	Ground
Pin 25	GND	Ground

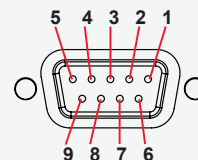
Analog RGB/VGA, 15-pin DSUB High Density Female



PIN 01	RED	Red, analog
PIN 02	GREEN	Green, analog
PIN 03	BLUE	Blue, analog
PIN 04	ID2/RES	Reserved for monitor ID bit 2 (grounded)
PIN 05	GND	Digital ground
PIN 06	RED_RTN	Analog ground red
PIN 07	GREEN_RTN	Analog ground green
PIN 08	BLUE_RTN	Analog ground blue
PIN 09	KEY/PWR	+5V power supply for DDC (optional)
PIN 10	GND	Digital ground
PIN 11	ID0/RES	Reserved for monitor ID bit 0 (grounded)
PIN 12	ID1/SDA	DDC serial data
PIN 13	HSYNC.	Horizontal sync or composite sync, input
PIN 14	VSNC.	Vertical sync, input
PIN 15	ID3/SCL	DDC serial clock

9-pin Amplified Mono/Stereo Audio Out, DSUB Female

Type Number "HT 00235 OPT-A1"



PIN 01	LAUDR	Left Audio Return*
PIN 02	LAUD	Left Audio*
PIN 03	RAUDR	Right Audio Return
PIN 04	RAUD	Right Audio
PIN 05	N/C	No internal connection
PIN 06	N/C	No internal connection
PIN 07	N/C	No internal connection
PIN 08	N/C	No internal connection
PIN 09	N/C	No internal connection

*For Mono: connect pin 01 and 02 only

Additional connector pinouts may be available in third party motherboard manuals, primarily for computers only. Please see manual/drivercd delivered with your product or own section in this user manual.

GENERAL TROUBLE-SHOOTING

CD-ROM FAILURE OR READ/DETECTION PROBLEMS?

If the product are operated/located in a area with extreme condensation, the CD/DVD-ROM drive may not work correctly due to condensation on the read head. Keep the product on for a while until it's reached normal operating temperature, and retry accessing discs. Otherwise, consider using USB memory sticks or alternative storage devices.

NO CD-ROM AVAILABLE ON YOUR PRODUCT FOR INSTALLING DRIVERS/SOFTWARE?

Please use USB memory sticks, USB Floppy drive, USB CD-Rom Drive or alternative storage devices to transfer or install software on CD-ROM-less units. You may also download drivers from: <http://www.hatteland-display.com/archive>

RECOVERY/RESCUE IMAGE

The Recovery Kit (USB Flash) will attempt to restore the HDD/SSD partition back to factory default overwriting all current data available on the HDD/SSD device. The recovery image is located either on a hidden partition image located on the computer unit (HT/HM C01 with WinXP only) or it is included as a image on the USB Flash Kit for HT 221, HT 216, HT B17, HT B18, HT B22 and HT/HM C01/C02 (Win7 only) computer models. The recovery image file is not accessible from any operating system, only by the Recovery Kit (USB Flash) provided by Hatteland Display. For more information, visit <http://www.hatteland-display.com/os>

Note that all files created after initial factory boot will be DELETED - make sure you do backup!

Restore from external USB recovery image:

- 1: Insert the USB Flash media into the computer usb connector.
- 2: Restart the computer.
- 3: On the first screen that appear, press "Delete" or "F2" on the keyboard (depending on BIOS model) to bring up the BIOS setup screen.
- 4: Select "Advanced BIOS features" or "Boot" (depending on BIOS model).
- 5: Set "Harddisk boot priority" to "USB HDD" as number 1
or select "Hard Disk Drives", then modify "1 st" to "USB:" depending on BIOS model.
- 6: Press F10 and then Enter on keyboard, or "F4" to save settings (depending on BIOS model).
- 7: Follow the on screen instructions that will be executed from the USB Flash media, such as;

```
Hatteland Display Backup Tool, version 1.0.1
Copyright (c) 2000 Hatteland Display and Symantec Corp.

===== Warning! =====
Restoring the hard drive image will
erase all data on the entire drive.
Proceed only if you have saved all
recoverable personal data.

Please choose an option below:
1. Continue to restore hard drive
2. Exit program
```

```
Hatteland Display Backup Tool, version 1.0.1
Copyright (c) 2000 Hatteland Display and Symantec Corp.

The provided hard drive image is only valid for HT XXX

Please choose an option below:
1. Restore hard drive
2. Exit program
```

- 8: After the restore operation is complete, remove the USB Flash Media and restart.

```
The image integrity check was successful. Now restoring factory image...
Hatteland Display Backup Tool, version 1.0.1 status:

Drive restore was successful. Please remove the USB-drive and reboot your system
```

- 9: The computer is now restored to its original factory state.

- 10: If rescue failed, an error message will be displayed.

```
===== Warning! =====
The image integrity check failed, your system was not restored
Contact Hatteland Display Product Support Services

===== Warning! =====
A problem was encountered restoring the factory drive image.
Contact Hatteland Display Product Support Services
```

HATTELAND® DISPLAY


Declaration of Conformity

We, manufacturer, **Hatteland Display AS**, Åmsosen, N-5578 Nedre Vats, Norway

declare under our sole responsibility that the
JH MMD, JH MMC, JH STD, JH MIL, HM NMD, HM MIL, HM CMD, HT STD, HD MMD, HM MMD, HT MMC, HD MMC
and HT (computers) product ranges is in conformity with the following standards in accordance with the EMC Directive.


Low Voltage Directive 2006/95/EC
EN 60950:2006/A2:2013

EMC Directive 2004/108/EC
EN 55022:2010 / AC:2011 Class A
EN 55024:2010

Signature: 
Frode Grindheim
Vice President Product Management
Nedre Vats, Norway



CE MARK FIRST AFFIXED DATE (11 March 2010)

Signature: 
Arne Kristiansen
Site Manager - Test & Commission Division
Oslo, Norway

Declaration of Conformity

We, manufacturer, **Hatteland Display AS**, Åmsosen, N-5578 Nedre Vats, Norway
declare under our sole responsibility that the JH MMD, JH MMC, JH STD, JH MIL, HM NMD, HM MIL, HM CMD, HT STD,
HD MMD, HM MMD, HT MMC, HD MMC and HT (computers) product ranges is in conformity with
IEC 60945 4th (EN 60945:2002) and IACS E10 (where applicable)

HATTELAND® DISPLAY


Declaration of Conformity

We, manufacturer, **Hatteland Display AS**, Åmsosen, N-5578 Nedre Vats, Norway

declare under our sole responsibility that the products listed below comply with
FCC 47 CFR Part 15, Subpart B, Class A:


JH MMD, JH MMC, JH STD, JH MIL, HM NMD, HM MIL, HM CMD, HT STD, HD MMD,
HM MMD, HT MMC, HD MMC and HT (computers) product ranges

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial
environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the
instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to
cause harmful interference in which case the user will be required to correct the interference at his own expense.

Signature: 
Frode Grindheim
Vice President Product Management
Nedre Vats, Norway



FCC MARK FIRST AFFIXED DATE (16 February 2012)

Signature: 
Arne Kristiansen
Site Manager - Test & Commission Division
Oslo, Norway

Return Of Goods Information

Return of goods:

(Applies not to warranty/normal service/repair of products)

Hatteland Display referenced as “manufacturer” in this document.

Before returning goods, please contact your system supplier before sending anything directly to manufacturer. When you return products after loan, test, evaluation or products subject for credit, you must ensure that all accessories received from our warehouse is returned. This applies to cables, powermodules and additional equipment except screws or similar, user manual, datasheets or other written paper documents. Furthermore, the product must not have any minor / medium or severe scratches, chemical spills or similar on the backcover, front frame or glass.

This is needed to credit the invoice 100%. Missing parts will not be subject for credit, and you will not get total credit for returned product. You will either be charged separately or the amount is withdrawn from the credit. If you decide to ship the missing items on the after hand, you will get 100% credit for that particular invoice or items received at manufacturer incoming goods control. Please contact our service/sales department if additional questions



Handling and packing units for return/credit

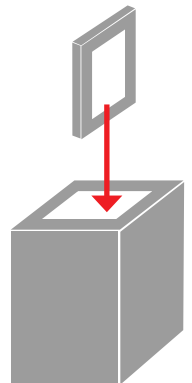
To prevent damage during shipping and transportation, respect the guidelines below.

Make sure you surround the product with the following material (whenever possible):

Use the original packaging from manufacturer, firm foam material, bubble wrap, lots of PadPack paper or foam chips/polyester wrapped in sealed plastic bags. Please make sure that the unit is protected with a surrounding plastic bag to prevent dust accumulation around the unit.

If you do not have the original packaging or are uncertain how to secure the unit properly, please consider seeking advice from nearby shipping or transportation offices, if in doubt!

Do not under any circumstances use loose foam chips, expanded polyester, clothes, cardboard with sharp edges/spikes, too little or nothing to secure the unit inside the box. Do not use cardboard boxes that are clearly too weak or not suitable for securing the unit properly during overseas shipment.



Terms Of Sale And Delivery

1) APPLICATION

The terms of sale and delivery apply for Hatteland Display.

2) PRICE

- a) The price is per each, if nothing else has been stated, VAT not included. Price is based on the prices from our suppliers, current custom rates, taxes, rate of exchange and international raw material prices. We reserve ourselves the rights to adjustments in case of alternation on the above mentioned.
- b) Included in the price is the supplier's standard packing. In case of re-packing/smaller quantities we reserve ourselves the right to add an additional sum for warrantable packing according to CECC 0015 (Basic inspection for protection of electrostatic sensitive devices)

3) VALIDITY

If nothing else has been stated in our quotation, the offer is valid for 30 days from the date of quotation.

4) PACKAGE QUOTATION

A package quotation means that all the components offered, must be ordered by us. If one component or more are removed from the quotation, the prices given in the package quotation are not valid.

5) TERMS OF PAYMENT

Cash on delivery or payment in advance. Net granted for companies, schools and institutions only, according to agreement. In case of too late payment 1.5% interest/month will be charged. Seller has mortgage rights in the goods delivered until the purchase price, additional interests and charges have been paid in full. Accepted bill is not considered as payment until it has been honoured in full.

6) TIME OF DELIVERY

The quoted time of delivery is based on information from our suppliers. We disclaim any responsibility for the consequences of any delay or cancellation from our suppliers. Belated delivery gives not solely the right for cancellation.

7) DELIVERY POINT OF TIME

Goods are considered delivered to customer when handed over to charterer.

8) FREIGHT / PACKING / FORWARDING FEE

Hatteland Display charge NOK 50,- in forwarding fee for orders below NOK 1000,-.
Freight charge according to expenses for orders above NOK 1000,-. VAT not included.
For carriage arrangements organized by customers, a handling fee of NOK 200,- will be applied.

9) COMPLAINT

By receipt customer must check goods for obvious defects which have to be claimed within 8 days from receipt. Otherwise acceptance of complaint can not be counted on.

10) WARRANTY / SERVICES

Time of warranty is calculated from our date of shipment, and applies to the extent that we are covered by our supplier's warranty regulations. The warranty does no longer apply if:

- I) there has been encroached upon the goods without seller's consent
- II) terms of payment is not fulfilled
- III) the goods have been damaged due to unskilled treatment
- IV) components which are sensitive for static electricity have not been unpacked and treated in a secure way.

Minimum requirements: CECC 00015's standards for handling of such components. The warranty does not include fair wear and tear.

11) RESPONSIBILITY

Seller undertake to deliver faultless and functional capable goods according to existing technical specifications. Seller disclaim responsibility for any damage or loss which directly or indirectly may be caused due to failure or defect with the delivered goods, if carelessness from the seller can be limited up to the cost of the goods. The supplier's responsibility for defects with the supplied goods do not include secondary damage or loss.

Terms

12) CANCELLATION / RETURN

Binding sales contract is concluded when we have confirmed customer's purchase order. Any disagreements in our order confirmation must be reported to seller within 6 days. The agreement can not be altered without our permission, after acceptance from our supplier. If goods are wanted to be returned, a Return No must be assigned from seller. Returned goods without a Return No will not be accepted. By return of stock listed goods, 20% return fee is charged. Returned goods are shipped on customer's account and risk.

13) LOAN, RENT and DEMO

When borrowing of goods for demo/test, the date of return must be added to the document. If no date has been stated, date of return is two weeks from the date of the document. Before return, seller must be contacted for a Return No (RMA). Goods which have been sold with an agreed right of return within stated terms, shall also have a Return No. The Return No must be obtained before the stated date of return. Returned goods without a Return No, or which have not been packed in original packing, will not be accepted.

14) LIMITATIONS

If any of our suppliers claim limited delivery terms towards us, our terms of delivery will be restricted according to those.

15) SOFTWARE

Sold or borrowed software is not allowed to be copied or spread in other ways, without a written permission.

16) RE-EXPORT

Goods delivered from seller may be subject to special rules of exportation in their supplier's native country. Buyer is responsible to obtain necessary permissions for further export/re-sale.

17) QUESTION IN DISPUTE

To settle any dispute the Karmsund Herredsrett is approved the legal venue.

INSTRUCTIONS FOR THE CONSIGNEE

1) CONTROL

Control the goods immediately by receipt. Examine the quantity towards the invoice/packinglist/shipping documents. Look for outward defects on the packing which may indicate damage on or loss of contents. Control the container and the seals for any defects.

2) SECURING EVIDENCE

When defects on the goods have been found, evidence must be secured, and seller must be informed. Call the transporter and point out the defects. Add a description of the defects on the goods receipt, the forwarder's copy of the way-bill or on the driving slip.

3) RESCUE

Bound the damage. Try to restrict the damage and the loss. Seller will compensate expenses incurred due to reasonable security efforts in addition to damage and loss.

4) COMPLAINT

Write immediately a complaint to the transporter or his agent. Forward immediately the complaint to the transporter or his agent, and hold the transporter responsible for the defects. The complaint must be sent at the latest:

- for carriage by sea: within 3 days
- for overland / air transportation within 7 days

5) DOCUMENTATION

For any claims the following documentation is required, and must be forwarded to the company or their agent: invoice, way-bill and/or bill of landing, and/or statement of arrival, inspection document, besides a copy of the letter of complaint to the transporter.

General Notes:

- License Terms for the installed OEM Operating System (OS) can be found in the following default factory paths:

Note: This is a general listing for a variety of OS's Hatteland Display can factory install depending on unit.

Please check specification for your unit to verify type of OS installed in order to retrieve the license terms.

Microsoft® Windows® 7 Professional: C:\Windows\System32\en-US\Licenses_Default\Professional\license.rtf

Microsoft® Windows® 7 Ultimate: C:\Windows\System32\en-US\Licenses_Default\Ultimate\license.rtf

Microsoft® Windows® Embedded 8.1 Industry Pro.: C:\Windows\System32\en-US\Licenses_Default\EmbeddedIndustry\license.rtf

Microsoft® Windows® XP Pro: C:\Microsoft Windows XP Embedded and Windows Embedded Standard 2009 - License Terms.doc

Note: Does not apply for Microsoft® Windows® XP Professional for Embedded Systems.

- For certain computers, the on-board signal output (RGB, VGA, DVI) will be disabled if additional graphics card is installed and present in one of the PCI/PCIe slots. Please check "Physical Overview" in this manual to determine if your unit has the option for installing a additional graphics card in either PCI or PCIe slot.

User Notes

[illegible]

Revision History

Please note that references to page numbers may only be valid for the latest revision.

Rev.	By	Date	Notes
0	SE JE	Nov 2008/Jan 2009	Release for internal reviews
1	SE JE PT	27 Feb 2009	Release of final rev1 for internet
2	SE GOS	26 Mar 2009	Update specifications and installation recommendations.
3	SE JE	19 May 2009	Updated specifications. Added drawings and information about 19" Rack Kit 4U, Sliding Rails and Mounting Brackets accessories.
4	SE JE	28 May 2009	Replaced trouble shooting chapter with specific HTC01 troubleshooting and instructions for recovery image.
5	SE JE	09 Jul 2009	Revised drawings for 19" Rack Kit HTC01, 4U. (Page 36,37) Revised specifications (Testing page 32)
6	JE SE	10 Sep 2009	Added note about HDD/SSD future sizes (page 32)
7	AK JE SE	29 Oct 2009	Revised text elements in contents of package page 5 Added computers introduction page 9 Removed LRS type approval text on specifications page 32. Revised drawings for 19" Rack Kit HTC01, 4U. (Page 37) (Panhead screws should be M6x8) Revised specifications (ABS Type Approval) Page 32
8	JE SE	19 Nov 2009	Revised contents of package (3rd party hardware box text) page 4 Revised specifications (HDD 120GB->250GB + remove A356) page 32
9	AK SE	03 Dec 2009	Added Nippon and BV Type Approved (page 32)
10	AK SE	21 Jan 2010	Added DNV Type Approved (page 32)
11	JE SE	02 Sep 2010	Added info regarding DC Dxxx models (page 1, 5, 11, 14, 28, 32,34) Added GL Type Approval (page 32) Added LRS Type Approval (pending) page 32 Change Axxx to yxxx to conform with both AC and DC models (Axxx = AC, Dxxx = DC)
12	JE SE	08 Mar 2011	Revised company related text (page 1,8) Revised Contents of Package (user manual/documentation dvd) (page 5) Revise DVI-I text (added note) (page 29) Added Technical Drawings for Sliding Rails HT 00224 and HT 00225 (page 39,40) Minor text changes for Recovery CD functionality (page 44)
13	JE SE	30 Mar 2011	Revised specifications, added LRS type approval and Operating System ID (page 11,32)
14	JE SE	20 Jun 2011	Revised contents of package (HT 00215OPT) (page 5) Added note about HDD replacement for DC models, power must be dismounted as well (page 20) Added BV approval for DC, ABS, GL to specifications (page 32) Added DC model drawing (page 35) Revised Recovery Kit (USB Flash) HT 00215 OPT User Guide (page 44)
15	MM SE	20 Mar 2012	Revised contents of package, "hidden recovery partition" notice for WinXP only, page 5 Revised specifications, ref: http://www.hatteland-display.com/emails/27_2011_ecn.html , page 32 Revised trouble-shooting text to difference between locations of Recovery Image, page 44 Added FCC notice and logo, page 45 Added note about references, page 50 (top of this page)
16	JE MM SE	18 Mar 2013	Added note for "License Terms OEM OS", page 50 Added Factory Option Accessory, HT 00235 OPT-A1 (2W Amplified Audio out via DB9F), page 28,30,32,44
17	JE SE	12 Jun 2013	Revised point 6 in General mounting instructions, grounding, page 14 Added note for disabled on-board graphics connector, if additional graphics card was installed, page 29,53 Added SSD Selection Guide, page 42,43,44
18	BQ SE	02 Apr 2014	Added illustration for DC 2P power input Amphenol FCC17 D-SUB MALE / FCE17-E2W2SS-2N0, page 46 Revised Declaration of Conformity, page 50
19	ME JE SE	05 Nov 2014	Revised note for DVI-I (via adapter to VGA/RGB), page 29,32 Revise SSD chapter, page 42-45 Revise OS License Terms, page 53

